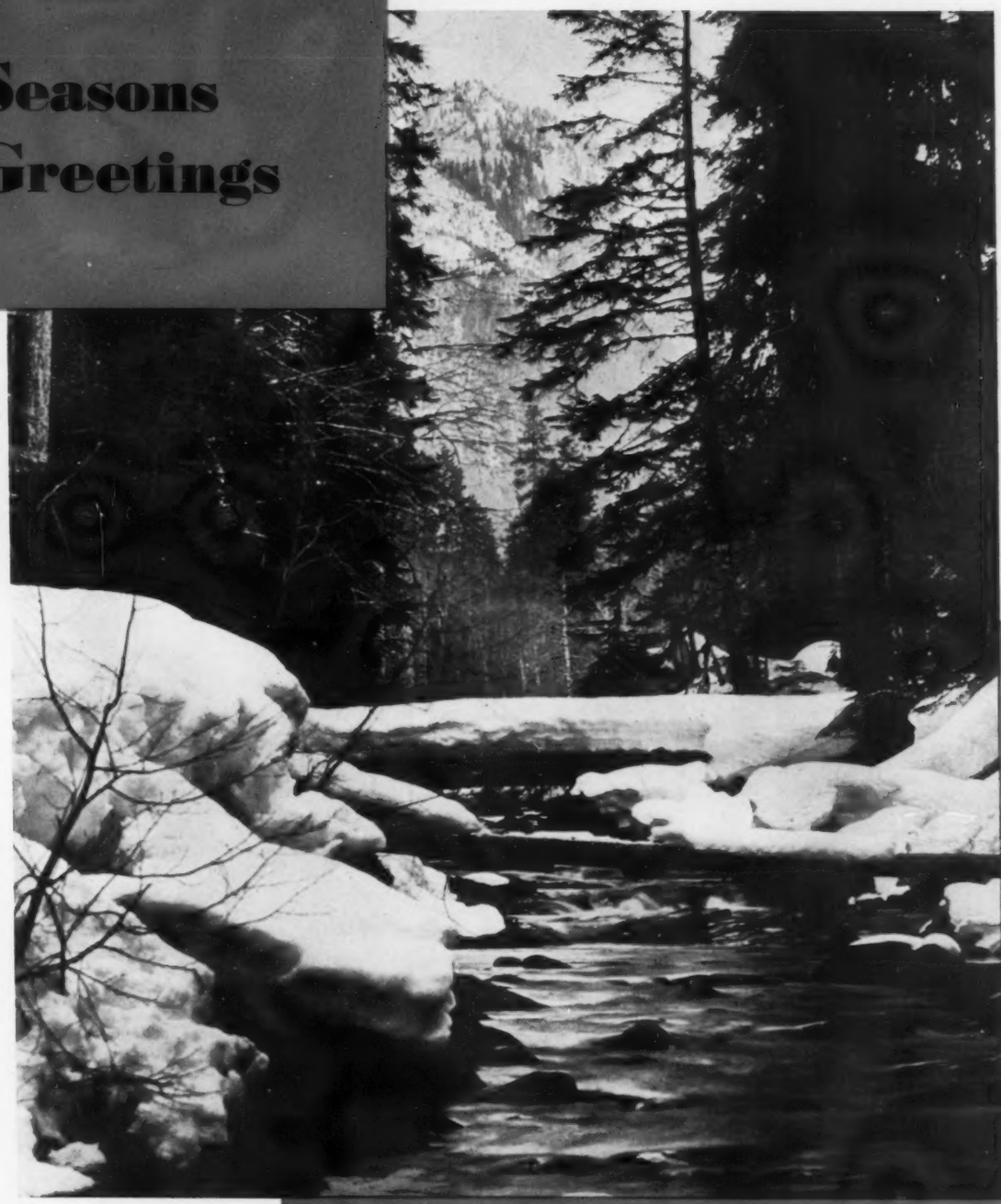
ELECTRICAL WEST

Seasons Greetings



December
1933
McGraw-Hill Co. of Cal.
25 Cents Per Copy

Is there a way to wipe out those Newly added Costs?

We believe that there is going to be one important difference between the merchandising that will be done by utilities in the future and that which has been done in the past. *Newly added costs are going to make it necessary for utility companies to select the appliances they sell with a keener appraisal of profits.*

From this standpoint we believe that Frigidaire, with its ever-growing public preference, offers the utility company the fastest-selling, and therefore the most profitable, electric refrigerator to handle. Furthermore, the wide range of Frigidaire products, including all types of commercial and air conditioning equipment, greatly increases the load building and profit possibilities.

It is our policy to do everything possible to increase the sale of Frigidaire through utility companies. That is why we offer an Individualized Sales Service —with sales plans individually adapted to meet the needs of each individual utility company — sales plans that *work*.

Utility executives tell us that the Frigidaire organization is outstanding when it comes to understanding their problems... and lending a hand in working them out.

We appreciate that opinion. We have made a sincere effort to earn it. For in the merchandising of electric refrigerators the utility company has been one of the most important factors.

May we show you how these plans can be adapted to *your* needs? Frigidaire Corporation, Subsidiary of General Motors Corporation, Dayton, Ohio.

Frigidaire

A GENERAL MOTORS VALUE

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the New ELECTRICAL WEST

for December, 1933

Volume 71—No. 6

The Editors Think Out Loud

▼

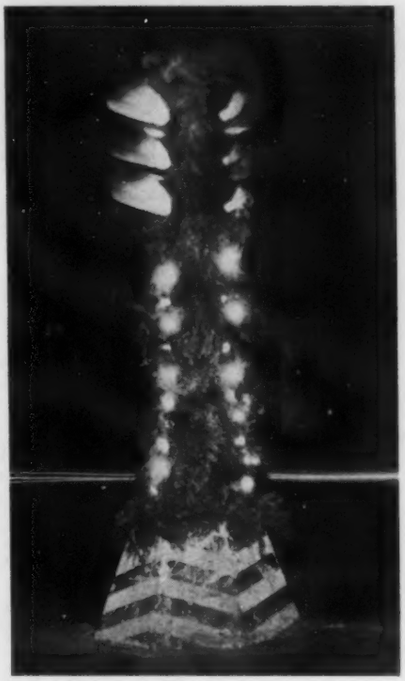
Still Cautious

VOTERS seem to keep their heads, despite the rosy aura of the New Deal that is thrown around public ownership of power in order to put over such projects. San Francisco turned down the proposition to insert the entering wedge of a partial distribution system, in spite of a strong attempt to link it with the NRA and thus virtually to make voting against it something short of treason. Salt Lake City turned down a municipal ownership plan by a vote of more than 2½ to 1. Even in the Tennessee Valley, Muscle Shoals power goes begging for big customers as cities like Birmingham turn it down and only the little towns accept the deal. Up in Oregon the governor thinks he had better ask the people for money to build a statewide transmission system so that something can be done with Bonneville's big surplus of power soon to be thrown on the market—and no market. Voters are not so dumb—if they can be told the facts.

▼

Sandy Claus

SUCH inspiration as that which moves Clarence F. Pratt ("Sandy" to you) each year to stir the whole of California into a tree planting and tree decorating campaign is the kind of inspiration that should somehow be injected into more of the electrical industry. Until this year Mr. Pratt had no interest in the electrical industry and now it certainly is not in lighting. But he is an enthusiast in the cheer and happiness that a lighted and decorated community have at the Holiday season. This year he is even issuing a well thought out plan book to be used by communities in organizing a tree and decoration contest. Everywhere he finds other enthusiastic supporters. Only among electrical people, he relates, who have one of the greatest interests in such movements, does he find lack of imagination, and enthusiasm. Are we so near the forest we cannot see the trees?



Here's something new in the way of Christmas decorative lighting. Denver, which still claims title to "Christmas City of the World," created a lot of holiday atmosphere by connecting strings of red and green lights to traffic signals at all the main intersections. The strings extended the length of the signal posts, being woven into evergreen roping. They flashed red and green with the respective signal lights.

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Improves With Use

SCARCELY a day passes but someone tells us that he has just "discovered" the October Customer Sales Manual issue of Electrical West. Scarcely a day passes but some one who has made that "discovery" uses it to make sales, to decorate a window, to write a piece of advertising, to show a customer. And strangely enough though the issue was designed to help make Christmas sales, it is an all-year selling tool to the dealer or salesman with the imagination to use it as such. There is no "season" to good sound sales ideas. If you haven't discovered it yet, look back and read it over carefully. "There's gold in them thar issues."

▼

APPLICATIONS for 10 per cent reductions in rates for all Army posts have been filed with regulatory bodies throughout the country by the War Department. If consideration is given to ability to pay, then the complaints should have little standing. Uncle Sam is one of the few customers of the utilities whose credit is unquestioned. One regulatory commission denied the War Department's applications on these very grounds.

▼

Dressed Up

"WHAT the well dressed gas engine will wear" seems to have quite an effect on its sales. One company has dolled-up a model show installation near San Bernardino with shiny brass pipe, white paint, shining meters, and attractive signs. Maybe we'd do well to chromium plate electric motors and return to the pretty marble panels with lots of copper switches aboard. Exporters say that machinery painted in reds and highly nickle plated sells best in Latin-American countries. Let's have "styled" pumping plants to offer in competition. Farm machinery is always gaudy until left out in the rain a couple of winters.

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How Long?

ANOTHER argument in favor of some method of financing the capital goods industry so as to permit needed plant modernization is contained in the recent experience of a Pacific Coast electrical manufacturer. The following telegram was sent in response to a rush order from an industrial plant for replacement parts:

"SORRY CANNOT SHIP ORDER UNTIL INVOICE FOR EQUIPMENT SENT YOU ELEVEN MONTHS AGO IS PAID."

And here is the reply that was received:

"CANCEL ORDER WE CANNOT WAIT THAT LONG."

—Read

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Sales of the Month » » »

Appliance Society Organizes Drive

AIMED at developing a maximum volume of business by featuring electrical appliances as Christmas gifts, an intensive cooperative campaign is being undertaken in the San Francisco Bay region by the newly organized Electrical Appliance Society of Northern California. The campaign opened the day following Thanksgiving and will continue until December 23.

Financed by a fund of approximately $6,000 contributed by manufacturers, distributors and the Pacific Gas and Electric Co., the campaign is designed to give dealer members of the society a vehicle to which their advertising and sales promotion may be tied during the Christmas shopping season. Two newspaper advertisements, one 4 col. by 15 in. and the other 3 col. by 12 in., will be run on a staggered schedule in seven newspapers in San Francisco, Oakland and Berkeley. The advertisements over the signature of the society feature the practicability of electrical appliances as Christmas gifts. Newspapers will solicit tie-in copy and will run considerable electrical appliance publicity in addition to the advertising. Already one newspaper reports that double page spreads have been assured in the two issues in which the cooperative advertising will appear. It is expected that more electrical appliance advertising will appear during the period of the campaign than in any time in the history of this territory.

In addition to the newspaper advertising, 90,000 copies of an attractive 4-page tabloid newspaper will be distributed to a selected list of customers in the territory. Copies of this paper will also be available to dealers at the low rate of $1.50 per thousand. Two attractive four-color display cards to be featured in window and floor displays will be furnished without charge to all dealers in the territory. An advertising mat service is also available to retailers.

The full support and coordination of the Pacific Gas and Electric Company's sales department is being placed behind the campaign. A contest on electrical appliances will be featured in the December issue of "P.G. & E. Progress" which has a circulation of approximately 550,000 in the territory. Window and floor displays of electrical appliances tied to the Christmas gift theme will be maintained in all district offices. Some 400 women employees of the company will cooperate with the campaign through the holding of a series of speaking contests and appliance cooking schools. In addition all employees of the company will be circularized with the "self-interest" bulletin featuring electrical appliances which is the first of a series prepared by the Pacific Coast Electrical Bureau.

Replica of 4-color window display poster that is part of Christmas appliance campaign in northern California

Manufacturers and wholesalers are cooperating through the enlistment of their field sales forces to carry the story of the campaign to all retailers. Local chapters of the appliance society are being organized in San Francisco and the East Bay cities. B. W. Reynolds of the Pacific Gas and Electric Co. organization is acting as promotional director of the campaign.

▼

Merced Dealers Make Radio Progress

Radio dealers of Merced, Calif., took full advantage of Radio Progress Week by holding their first cooperative radio show. So well satisfied were they that they plan another in 1934, bigger and better. The Pacific Radio Trade Assn., cooperating with the Radio Manufacturers Assn., appointed committees to carry the story to the dealer. H. H. Courtright, Valley Electrical Supply Co., was appointed chairman of the San Joaquin Valley committee. Dealers in the main trading areas of Merced, Fresno, Visalia, Porterville and Bakersfield were encouraged to capitalize on the national program. "It remained for the Merced dealers to show the greatest activity," said Mr. Courtright. "I feel that those who took part in this show have done a fine piece of work, on short notice, and are to be congratulated."

A general committee, consisting of John Felber, Merced Electric Co.; L. W. Brammer, Bedesen & McNamara; G. W. Degner, Degner's Radio Shoppe, and Mr. McGuahy, of Montgomery Ward & Co., and an exhibition committee, consisting of H. F. Manchester, Merced Electric Co., and S. G. Blakesley, Blakesley & Son, were appointed.

A vacant storeroom, located in a favorable downtown section, was rented for the exhibit. The Radio Amateur's Club, which gave fine cooperation throughout the show, cleaned and decorated the place and built booths for the exhibitors. Window display service of Valley Electrical Supply Co. and the services of J. U. Berry, display manager, were used to advantage. Show cards and signs for each booth listed dealers' names. Booths were assigned by lot. Eight members of the Merced Radio Assn. participated in the show, five radio dealers and three service men.

In addition to the main exhibit four amateurs set up their equipment and sent out radiograms.

Expenses for the show were kept at a minimum. The rental charge for the booths was $4 each. Main items of expense included cooperative newspaper advertising, entertainment and rent. Newspaper advertising was carried on for four days and the power company ran a quarter page, the dealers using a like amount of space jointly. Entertainment was furnished by the Stockton radio station KGDM but the music was not broadcast, although presumably carried on in a "broadcasting studio." The only prizes were given on Saturday night to lucky number holders. A radio was given as the grand prize. More than 1,000 people visited the show.

▼

¶San Diego County's Electrical Refrigeration Bureau collected the $150 third prize in the contest conducted by the National Refrigeration Bureau to determine the most successful refrigeration show conducted between October 31 and November 7. First prize went to the Electric and Radio Association of Kansas City. Another Western organization which landed among the winners was the Spokane Electrical Refrigeration Bureau which was awarded seventh prize of $25. As a result of the coordinated national sales effort being placed behind electric refrigeration during the closing months of 1933 the national bureau now estimates that total sales for the year will exceed 1,100,000 units.

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¶Clark Baker, "Padre of Light," continues his missionary work on behalf of light throughout the state of California. Recently he concluded a series of sixteen meetings in San Diego and vicinity accompanied by A. I. Benedict, lighting sales engineer of the San Diego Consolidated Gas & Electric Co. In San Francisco he conducted a series of talks in connection with the Emporium's Charm Home, and in Los Angeles was successful in talking successively to a number of sales meetings of the Barker Bros. employees at all of its stores.

▼

S. K. Decker was recently appointed director of the commercial division of the Bureau of Power and Light, a post he formerly occupied.

Edison Launches Its "New Deal"

WITHOUT waiting for the new year, Southern California Edison Co. Ltd. on Nov. 15 launched its 1934 intensive cooperative all-industry load-building campaign which is designed to produce approximately $4,000,000 in additional gross revenue during the next 12 months. Expenditures in this sales drive are expected to approximate $1,000,000.

In a statement of policy signed by H. C. Rice, merchandise manager, and approved by W. L. Frost, vice-president in charge of sales, the statement is made that "our plan contemplates the development of sales through dealer channels, reserving for the direct activity of the company those items that are highly specialized and do not have consumers' acceptance. With this in mind the company will pursue the following plan of sales and promotion.

"1. The promotion but not the direct sale of ranges, refrigerators, air heating in stationary units, commercial cooling, washers and ironers. The company will pay the cost of wiring up to $35 in exchange for customer's old range.

"2. The promotion and direct sale of lighting units, water heaters, lamps and appliances.

"3. Range and water heater sales booster plan: The company will provide suitable ranges for trial purposes to home owners only. Dealers will be allowed to take trial orders. If no old range is turned in the company will advance $25 toward wiring, the customer to pay the balance. The dealer will receive $7.50 commission on each trial order provided he does not make a permanent range sale within 90 days. Trial ranges will not be sold.

"4. All dealer contact and promotion men will be on a salary basis. Lighting unit canvassers will be on a commission basis.

"As an integral part of any plan the company reserves the right to (1) always sell employees any article for their own personal use at a discount; (2) merchandise any and all articles in any district where, in our judgment, the dealers fail to develop sales on a satisfactory basis, as indicated by our established quotas."

The program and policy is the outgrowth of several months of investigation and study by W. C. McWhinney, general commercial manager, in which suggestions and criticisms from trade groups and individuals were solicited with the idea of developing a policy and plan which would receive wholehearted support from every branch of the industry.

Quotas established after consultation with manufacturers, wholesalers and dealers call for the addition to the lines of the company of 5,200 ranges, 16,000 refrigerators, 4,000 water heaters, 50,000 lighting units, 40,000 small appliances, 4,000 washers, 1,000 ironers, 10,000 hp. in air heating and air conditioning and 5,000 hp. in hotel and restaurant equipment.

An unique and impressive feature of the program is a financing plan which has been worked out with the company and the Commercial Investment Trust Corp. to finance dealer conditional sales contracts on ranges, water heaters and refrigerators without recourse. By accepting such terms as the maintenance of adequate service department, merchandise display, sales organization, and delivery service; the provision of complete monthly confidential reports of appliance sales; the securing of an adequate down payment; and the supplying of acceptable credit information, the dealers thus obtain a financing service on far more reasonable terms than possible for themselves. A charge of 5 per cent of the cash balance is made to compensate for the cost of collections, disposal of reverts and losses on reverts. On reverted merchandise a dealer agrees to pick up and deliver to the nearest company district store. He also agrees to work with the finance company field collectors in correcting misunderstandings between customers and himself.

Dealer identity is preserved because the dealer handles all details in the sale and servicing, keeping the company only as a financial agent. Out of the plan the dealer gets added profit, as much as from 3 to 10 per cent. He can do more business, employ more salesmen, increase his inventory. Collection costs are eliminated, reserves for losses unnecessary, and repossessions are not his loss. The credit of the consumer and not the dealer is involved. The dealer has no contingent liability on contracts. He operates on a cash basis.

Edison DEALER NEWS

Issued by the Dealer Service Department of the SOUTHERN CALIFORNIA EDISON COMPANY LTD. Head Office: 601 West 5th Street, Los Angeles, California

NOVEMBER 15, 1933

THE BIG SALES PUSH IS ON!

With Record Christmas Profits the Goal!

ELECTRICITY TO THE FRONT!

COOPERATION . . . All Along the Line Assures You of Success

First—Profits From Your Show Windows—

NOTHING has been overlooked to help you make this sale of electrical appliances a smashing success. For instance, you will be supplied by the Edison Dealer Representative with an attractive colorful window display material. Be sure you use it to full advantage. Bright posters, streamers, hangers, etc., will lend a cheerful holiday atmosphere to your store and windows and get your sales message over to every passer-by. It will pay you to take extra care in arranging this display and to make sure that your windows compare favorably with those of any competitor. With these sales helps you can make show windows what they really should be—sales windows. Be sure you do.

Radio Will Keep Reminding Them

Four big broadcasting stations located in Edison territory will keep the message "She deserves it . . . this year" on the air. This radio advertising will be in the form of spot announcements urging listeners to visit their Electrical Dealer to get the particulars of this unprecedented opportunity to own an electric range or refrigerator. During the month there will be more than five hundred of these messages broadcast. It is planned wherever possible and desirable and where the customer is agreeable, to congratulate the owners of these refrigerators or electric ranges on their purchase via the air, thereby building up greater good-will for you, and stimulating additional sales. Remember that pride of ownership is a big factor in selling.

Posters on Delivery Trucks

Another way you can tie-up your store with the big newspaper campaign, the billboard and radio advertising which will bombard the buying-public is by using the posters which will be furnished you for the side of your delivery truck. Don't overlook this highly valuable advertising medium. Remember that your trucks are constantly being seen by people in all parts of town, and this vivid poster will be seen and read by practically everyone before Christmas rolls around.

Your Store Is the Focal Point

Above all, do not neglect the final link in this carefully forged chain. The whole purpose of this coordinated effort is to get the customer inside your doors—to see—to inquire—to buy. Use every available means to accomplish this—newspaper advertising, publicity, telephone calls, the mails. Then be sure that your store is so attractive, your merchandise so well displayed, your service so considerate that people will prefer buying from you.

And Edison Advertising Is Your Heavy Barrage

EVERY ELECTRICAL DEALER CAN PROFIT IN THIS MAJOR DRIVE FOR SALES

SOUTHERN California Edison Company has launched a giant sales offensive in your behalf. Its slogan is "A New Deal for the Purchaser"—its objective, greater profits for Electrical Dealers between now and Christmas. With your enthusiastic cooperation it will result in the two biggest selling months you have enjoyed since pre-depression days.

The ammunition is ready for your use. Already you have been given the details of the revolutionary Edison Merchandise Plan. Its fifteen outstanding advantages to dealers, such as unlimited financing, increased volume of business, greater profit per sale, improved credit standing, elimination of repossession losses and many others have been brought to your attention. You have been told how Edison Dealer Representatives are prepared to work for and with you. The next move is yours.

Super-Charged Newspaper Advertising

Now we give you a "pre-view" of the vigorous advertising campaign shortly to appear in your local newspapers. This series of dominant messages will keep sales pilling up all through the pre-holiday weeks. Read these pointed, human-interest appeals and judge their power to bring customers into your store for the facts about the "New Deal for the Purchaser." They focus the spotlight of attention on you as a reputable merchant with a new and more attractive proposition for the buyer. They emphasize the economic necessity of the merchandise you handle. They keep reminding the prospective purchaser of the unusual advantages of buying now.

"She Deserves It . . . THIS Christmas!"

Such is the dramatic and appealing theme of this big campaign—directed to the buying-head of the family. Its effectiveness lies largely in the significance of such a statement at this time. No home-owner who reads it can fail to stop and think. And your own advertisement appearing on the same page will bring that man or woman into your store for further facts. Moreover, the Edison window display with posters, streamers and other sales helps will catch and hold the eye of everyone passing your place of business.

Work Intensively . . . Starting TODAY

If you have delayed putting your most vigorous effort into this sales drive, get started NOW—this very hour. For every day between now and Christmas holds invaluable sales opportunities. Make sure everyone in your store knows and understands this plan—and its importance. Co-ordinate your own efforts with ours, and make the most effective use possible of all the material we provide. Give yourself a new deal, by getting every last dollar of profit you can out of these two vitally important months.

And on the inside . . .

Your First Flash of this Big Christmas Campaign

His credit position is improved and he can discount his bills. His sales possibilities are immeasurably increased since the company can take all of the good contracts that he can produce.

By incorporating a trial or demonstration program on electric ranges to stimulate direct sales, the company believes that acceptance of and demand for this type of electric service will be measurably increased. The "Range Sales Booster Plan" calls for the company to provide a special model range to be used for trial purposes (five different makes at present). Any dealer will be privileged to offer to place one of these ranges in the home of a home owner on trial for the nominal charge of $1.50 per month. The Edison company will provide the wiring in exchange for the customer's old cooking equipment. In the event the customer does not have an old range to turn in the company will contribute $25 toward the cost of the wiring. The dealer will receive a fee of $7.50 from the Edison company for each trial installation made by the company providing he does not sell a permanent range to the customer within 90 days. The trial plan will not be available to renters, although the wiring allowance of $35 will be made by the company in cases where renters purchase a range outright from a dealer.

An advertising and sales promotional program commensurate with the quotas established has been worked out by R. G. Kenyon, advertising manager of the company. Besides a newspaper and direct-mail campaign of large proportions there is planned a radio program sponsored by an industry bureau which will lay emphasis on the advantages of electric service in the home including cooking, refrigeration, air conditioning, air heating, laundry equipment, table appliances and lighting. In connection with the radio broadcasting a weekly bulletin featuring items covered in the broadcast will be made available for distribution through all dealer channels. Dealers will be able to obtain copies of this bulletin with their own advertisement on the back page and their trade mark or name on the front page.

Cooking schools and exhibits, as well as the privilege of displaying merchandising on the power company floors, are also a part of the plan. A corps of well-trained dealer contact men to assist dealers in coordinating the plan, in training salesmen and in other phases of the program will be available. In addition, the company will provide trained home economists to call upon every range user as soon as possible after a range is installed and to call upon range users who are experiencing difficulty with their cooking problems.

In addition to the merchandising program, a complete plan for developmen of power load has been developed by R. C. McFadden, new business manager. The part of the load-building and revenue-producing program calls for the addition of 86,951 hp. of load, including 13,500 hp. of agricultural pumping, 2,000 hp. of miscellaneous agricultural load, 19,000 hp. of industrial load, 11,714 hp. of oil field load, 10,000 hp. of industrial heating, 2,000 hp. of industrial and commercial air conditioning, 21,000 hp. of new residential lighting, 7,287 hp. of commercial and industrial lighting and 450 hp. of street lighting.

To accomplish these objectives a trained organization of sales engineers has been placed in the field.

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¶**R. B. Andrews, retail commercial** sales manager of the Frigidaire Corp., Dayton, together with Tom Supplee and Elmer Ryley made a complete tour of Western states, holding "beer industry meetings" in all the principal cities of the West. These meetings were held jointly with the beer and brewery supply interests in each locality, Mr. Andrews giving a talk on the value of correct refrigeration in the handling of beer. Over 35 meetings were held in all. In every case beer and pretzels were dispensed after the meeting and exhibitors nearly always found their complete stock of bottled goods consumed at the end of the affair.

¶**Ironer demonstrators on call**—Just as when a sick person needs a nurse and calls a nurses' bureau, so the Apex-Rotarex Co., Oakland, Calif., has prepared five women demonstrators to answer calls from dealers for ironer demonstrations anywhere in the San Francisco Bay area. The five women were given a thorough schooling at the Oakland office of Pacific Gas and Electric Co. under an expert demonstrator from the factory. These girls are trained so that they will be available to dealers to conduct demonstrations either in windows or upon the floor and will actually be saleswomen too. "We will not sell ironers to dealers who do not properly demonstrate," said J. F. Stevens, Jr., advertising manager of the company. Thus the dealer hires a demonstrator, pays a commission on sales she actually makes and she usually develops her own prospects from demonstrations made. Ironers are now being manufactured in the Oakland factory of this company.

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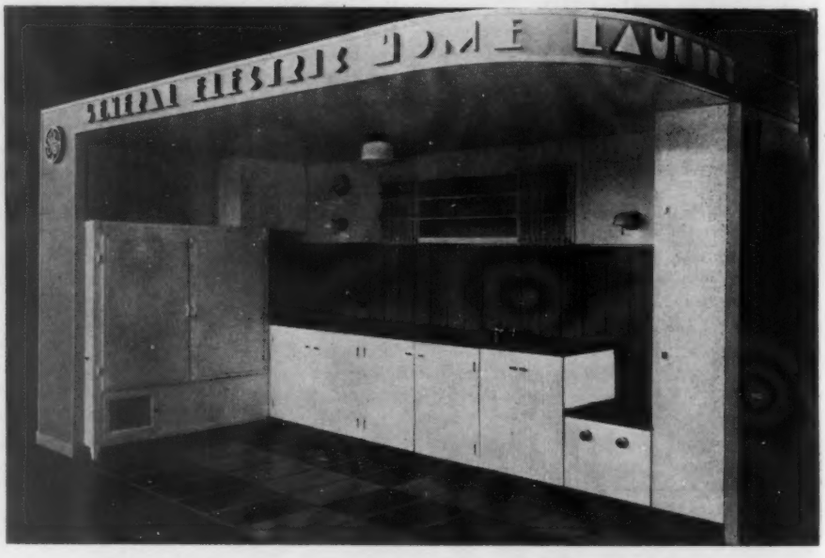
Yuma Union High School football field has been lighted with Giant floodlights totaling 37½ kw. Load is served by the Arizona Edison Co.

▼ ▼

And Now The Home Laundry

AN all-electric home laundry designed to play the same role in merchandising as the all-electric kitchen has done in revolutionizing kitchen selling has been designed by the Merchandise Department of the General Electric Co. It is so constructed that when not in use as a laundry it can be utilized as a separate room for sewing, an added playroom for the children or as a separate workshop in connection with the kitchen. Outstanding feature is the fact that all units are concealed when not in use. At the extreme left of this picture is the electric dryer of the cabinet type. Right above the dryer in the corner is the clothes chute. Next to the dryer and concealed by a cabinet is a flat-plate ironer which can be rolled out when in use and put back when the ironing is finished. Next to the ironer and also concealed is the double-tub washer, while next to the washer are the permanent set tubs. Farther to the right is an electric hotplate and at the extreme right a handy cabinet which has separate shelves at the top to keep all washing supplies together with plenty of storage space for other household equipment. Correct lighting and a built-in ventilating fan and clock are additional features.



The Trade is Cheered . . . . and is Cheering

★

A NEW POLICY - A NEW PROGRAM

Both Enthusiastically Acclaimed

★

IN a series of meetings with electrical dealers throughout the communities it serves, Southern California Edison Company has presented its plan to increase appliance sales during the pre-holiday season and throughout 1934.

This news has been welcomed with unreserved enthusiasm by all who have attended. Dealers have not hesitated to pronounce it the most far-reaching and beneficial program ever launched in behalf of the industry.

It is the profound belief of this Company that 1934 promises a measure of prosperity far ahead of predictions for those who work with *courage* and *intelligence*. Edison is, therefore, converting its force of appliance salesmen into a staff whose efforts henceforth will be devoted wholly to helping dealers make more sales.

In thus passing the responsibility for developing the sale and use of electrical appliances into the hands of the normal dealer channels, Edison provides these merchants with a larger opportunity for increasing their volume of business, their profits and their employment.

Of equal significance was the announcement of an advertising and merchandising program unprecedented in the Company's history. Through the media of newspapers, billboards, radio, direct mailings, window displays and other sales helps, far more people will be reached, with far greater frequency, and far more persuasively.

In sheer volume of advertising alone, this carefully-planned campaign exceeds any previous activity in selling electrical appliances in this territory. And the whole weight of this big drive is directed toward getting the customer into the electrical dealer's store.

Is it any wonder that the trade is cheered by this Edison plan—and is in turn cheering its announcement?

SHE DESERVES IT... THIS CHRISTMAS
AND NOW IS A GOOD TIME TO BUY THAT NEW ELECTRIC RANGE
BUY NOW...DON'T WAIT
You'll Never Regret Buying Your Electric Refrigerator Now
A BARGAIN Gift that Pays for Itself
IT'S A GOOD TIME TO GET THAT NEW ELECTRIC RANGE

The first broadside is fired . . . The Edison Christmas Campaign gets under way

SOUTHERN CALIFORNIA Edison *EDISON COMPANY LTD.*

A POLICY IN LINE WITH NRA AIMS

Varicolored lights can transform your town into a cheerful, hospitable place this Christmas. Ogden, Utah, shown at the top of the page, greets its visitors and citizenry with this blaze of color. Simply attained, with ordinary stringers of pig-tail sockets and colored lamps, every business neighborhood can be so decorated.

Christmas Selling Ideas

Ogden Enlists Art Students

COMPETITION between cities of the West for the distinction of being the most outstanding "Christmas City" becomes more and more of a contest each year. Denver has long claimed the championship, and has never failed to set a high standard in decoration and local interest. Southern California enlists the movie stars and makes an event of it second only to the premier of a new film. Spokane usually gives the Northwest something at which to shoot. But because Ogden, Utah, last year contributed a really new idea to the many which have been used so effectively by all cities, it deserves special prominence among the Christmas cities of the West.

Ogden's chamber of commerce selected a lighting committee and placed Homer Shaw, Utah Power & Light Co., in the chairmanship. The committee inaugurated a design contest for building lighting decoration among high school art students. Building owners gave cash prizes to the students turning in the most acceptable designs. Thirteen merchants entered the contest, gave prize totalling $75. There were 276 designs submitted.

Miss Sarah Wilson, supervisor of art instruction, handled the campaign from the schools. "This is the best thing that we have ever had in our art classes," she said. "The students took a great interest in it, worked diligently on their drawings, stayed after school until 5:30 and 6 o'clock in the evening. In fact, it was necessary actually to send some of the students home at night."

Buildings in town utilized these designs in the decoration of their fronts. An additional prize was offered by the chamber of commerce for the best decorative arch, three of which were used on three downtown intersections, as shown in the photograph at the top of this page. In addition to the downtown display the Ogden Standard-Examiner sponsored a home decoration activity which received splendid response.

▼

Orchestral selections, window cooking displays, moving pictures, lavish floral decorations, and other entertainment were all part of the "At Home" staged by Jameson's Electrical Ltd., 717 Fort St., Victoria, B. C., last Christmas. The event lasted for one week with tea served each afternoon following the cooking demonstration in an electric kitchen in the store window. A full orchestra was in attendance during opening day. Motion pictures of electrical appliances in process of manufacture were shown, and there was also an electrical toyland where messages were sent to and received from Santa Claus by means of a "long-distance hookup with the North Pole." Many thousands of persons were attracted to the store and good business resulted for the stunt. G. E. MacDonald, general manager, was in charge of arrangements.

Below is a big Christmas tree erected on the main intersection of Whittier, Calif., and decorated by K. D. Miller, contractor of that city

▼

Rocky Mountain Assn. Sponsors Sales Drive

FOR the second year bringing together all electrical dealers in the Rocky Mountain area in a joint campaign to make the public conscious of electrical appliances and to lead them to make electrical gifts in preference to any other, the Rocky Mountain Electrical Assn., and the Electrical League of Colorado is staging a big cooperative Christmas campaign.

As in last year's campaign the entire industry will advertise "Give Something Electrical for Christmas" as its slogan by means of stickers, posters, newspaper advertisements, and other media.

Miss Evelyn Dane, chairman of the R.M.E.A. women's committee, is in charge of one feature of the campaign that was eminently successful and unique last year. She is mobilizing the women employees of the utility to become sales minded about electrical gifts. Last year these women sold a

GIVE SOMETHING
Electrical
FOR CHRISTMAS
Your Merchants are Displaying a wide Variety of Things Electrical...Which Make Ideal Gifts
...and they last.

large bulk of merchandise, either directly or indirectly.

This year she is also organizing the feminine employees of dry goods houses, hardware stores, and electrical dealers, as well as the Public Service Co. of Colorado. The "give something electrical" slogan has an intensified meaning this year, backed by all electrically employed women within range of her organizing genius.

Incidentally there will be about a hundred cooperatively financed billboards bearing the slogan and carrying no signature.

This year the electrical gift program will receive the added impetus of the Electrical League of Colorado's consumer magazine, Electri-News, which will devote its December edition to electrical holiday gifts. This will be given a circulation of some 75,000 in the Rocky Mountain region.

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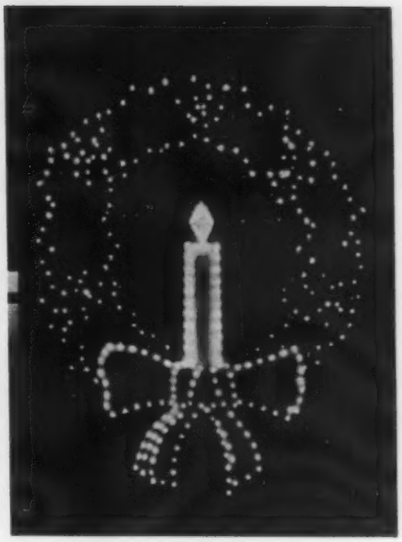
Decorate Buildings

The entire face of a building can be decorated with appropriate Christmas lighting, as was that of The Washington Water Power Co., Spokane. Two large wreathes, like that illustrated on the right, were suspended, one on each face of the building. Each was 30 ft. in diameter, contained 750 25-watt inside colored lamps—green for the wreath, red for the berries and bow, flame tint for the candle, shading from red through orange and yellow to white. Twinkler buttons on the berries and a motor driven flasher on the flame, gave action to the display.

Applique units for applying to the exterior of a building, can also be obtained. They make lighting for any kind of occasion easy. Even leaving lights burning in windows of a building, forming a tree or cross pattern, with all other windows darkened, make outstanding displays. Similar effect, enhanced, can be had by placing a single or triple candle and wreath in windows to form a mass pattern.



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Stickers Encourage Home Shopping

As a means of encouraging the people of Monrovia, Calif., to patronize home town stores, the management of the Jackson Electric Company of that city attached to all bundles going out of the place during the holiday season, stickers that bore the message, accompanied by an appropriate decoration:

"THANK YOU! WE ARE SHOPPING IN MONROVIA, TOO."

The stickers were 6 inches long and 2 inches wide, and were used in place of the gummed tape so frequently used by merchants in doing up packages instead of using twine. The idea can be followed at times other than Christmas when it is desired to foster the trade-at-home idea among the people.

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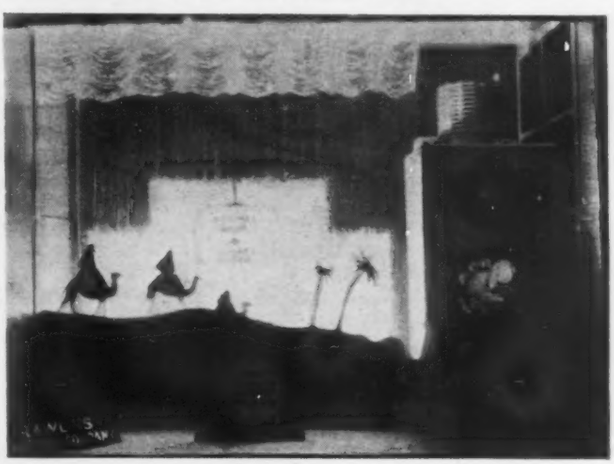

Some of the co-operative advertising done by dealers and the utility in Denver last year, a thing that will be repeated with greater emphasis this year, (left). Below is one of the honorable mention winning windows in last year's National Refrigeration Bureau's contest—that of Rawlins Electric Co., Rawlins, Wyo.

Distributors Told Need of Retail Stores

Distributors should have retail stores, maintains R. C. Cosgrove, manager Refrigeration Division, Westinghouse Electric & Mfg. Co., Mansfield Ohio, who just finished a tour of all Pacific Coast and Western states, including Texas and Arizona, northern and southern California, Oregon, Washington, and Montana, addressing groups of distributors and wholesalers. Charles A. Meier, manager of merchandise sales for Westinghouse Electric Supply Co. on the Pacific Coast, accompanied him on most of the tour. Meetings held in each district were similar to that in San Francisco where the Colvin-Templeton complete organization and sales staff, as well as dealers, met to hear him talk. W. R. Marshall, vice-president in charge of the Pacific Division of the company, talked to the meeting.

Mr. Cosgrove spoke very frankly and plainly. He brought a clear picture of codes and business conditions throughout the country. One thing he maintained was that distributors should have a retail business so that they can "know what the retail business is all about." They must know from first hand what the problems of the retailer are, so as not to overload the dealer and then worry about how he can pay for the stock afterward, he said. He maintained that when the refrigerator manufacturers of the country cut prices they might as well have raised them instead, since the cut prices brought no more sales.

A minimum of 125,000 units is scheduled for next year from his factory, he said, and price increases are inevitable. He also promised a commercial line of refrigeration shortly after the first of the year.

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P.C.E.B. Holds Conclave in L.A.

Reminiscent of commercial conclaves of the Pacific Coast Electrical Association, all Southern California regional committees of the Pacific Coast Electrical Bureau held a one-day session in the Edison Auditorium in Los Angeles, November 18, at which all-industry sales promotional plans for 1934 were outlined. Over 150 utility, manufacturers' and wholesalers' men as well as dealers and contractors attended.

Commercial plans for 1934 of three power companies serving the territory were described at a general session. W. L. Frost, vice-president, Southern California Edison Co., told of his company's program, as did A. E. Holloway, vice-president, San Diego Consolidated Gas & Electric Co., and George T. Bigelow, general agent, Southern Sierras Power Co. R. F. McFadden, bureau regional chairman, presided. Another feature of the general session was the reporting of statewide bureau committee activities.

In committee meetings held in the afternoon, plans for cooperative activities for 1934 were discussed and recommendations were made at a general session that closed the gathering. The appliance merchandising committee recommended the establishment of retail appliance societies in southern California cities similar to the Retail Electrical Appliance Society of Northern California and the San Diego Bureau of Radio and Electrical Appliances. Closer tie-in during 1934 with the national range and refrigeration activities was urged.

Continuation of the oil field electrification studies of the past year was recommended by the industrial committee. The lighting committee suggested more definite plans for capitalizing on the field work of the bureau lighting specialist, Clark Baker. Further study of soil heating and soil sterilization with the idea of developing a wider market for these electrical applications was suggested by the rural electrification committee.

Promotion of county electrical ordinances similar to the standard ordinance now in effect in Los Angeles County was urged by the Red Seal committee. Plans for promoting more rewiring of old homes were outlined, which include the granting of a certificate by the bureau to homes which have been modernized by rewiring. Progress on the adoption of a standard appliance ordinance for Los Angeles was reported and the announcement was made that as soon as this ordinance becomes effective in the metropolitan area many smaller communities will adopt similar ordinances.

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No Hessians Wanted

In the days of Washington, Hessian soldiers hired out to fight wars without knowing for what they were fighting. The electrical industry in California is determined that it shall have no Hessian soldiers in its ranks. Everyone working in the electrical industry, it is planned, will know just what it is the electrical industry is striving to do to make business and living better for the people of the state. Under the Pacific Coast Electrical Bureau appliance merchandising committee, headed by H. L. Harper, chairman, a series of thirteen pamphlets is being prepared for distribution by employers to employees, one each month during the next year.

The first of these appeared Dec. 1. It is titled "To Our Employees—The New Deal Calls for Cooperation—Let's Get Together in a Real Big Way for Your Own Self Interest."

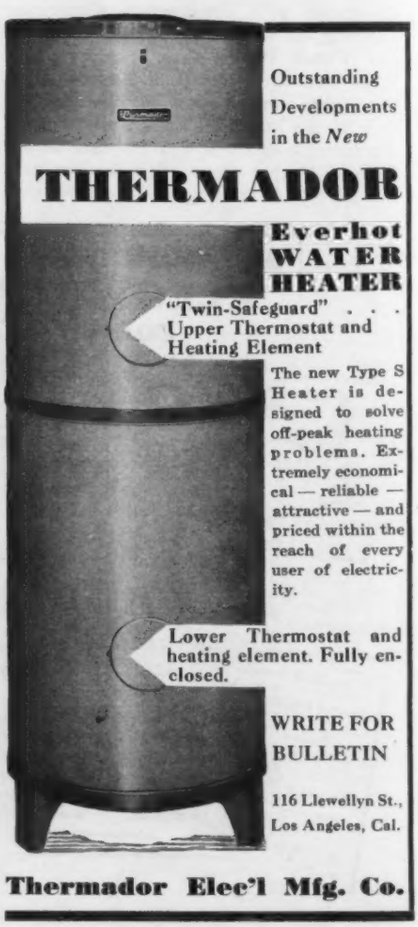
The pamphlet deals with the self interest of everyone in the industry in appliance buying by the public. It suggests very strongly talking to friends, neighbors and everyone with whom the people in the industry come in contact about electrical gifts for Christmas.

The pamphlet is attractively prepared in two colors and is the work of Fred Rae, advertising manager of General Electric Supply Corp. Pamphlets are sold to individual companies at a nominal cost, for distribution to their employees. To contractors they are given without cost. Special letters and order blanks have been sent out to all utilities, manufacturers, wholesalers, contractors and dealers in the state.

National manufacturers and wholesalers have also been asked to carry the thing on to national proportions. In fact, the Graybar Electric Co. has ordered enough to circularize all of its employees throughout America. Most of the large power companies likewise have ordered enough for all employees and many for others in the trade in their area.

K. I. Dazey, managing director, and Victor Hartley, assistant managing director, are bringing the program to the attention of all regions of the state of California.

The schedule of pamphlet subjects, sweeping as it does the entire field of appliances and of wiring necessary to use them conveniently, is as follows: First pamphlet, issued in December, 1933, to stimulate the Christmas trade, features electrical gifts. In January, wiring; February, lighting; March, cooking; April, air conditioning and ventilation; May, appliances for bridal gifts; June, refrigeration; July, home laundry; August, water heating; September, radio; October, space heating; November, sun lamps; and next December again, electrical gifts.



Palco Coolair Cottage, erected cooperatively by the Pacific Lumber Co., Frigidaire Corp. and Pacific Gas and Electric Co. at the latter's State Fair exhibit introduced the comforts of air-conditioning to 5,312 visitors

Air-Conditioned Home Attracts 5,312 People

Air-conditioning and electric soil heating were the major attractions at the rural electrification exhibit of the Pacific Gas and Electric Co. at the 1933 California State Fair at Sacramento. Approximately 39,000 visitors were attracted to the exhibit and 201 direct prospects for equipment of electrical applications were secured.

Many of the exhibits were cooperative in character and fifteen different manufacturers cooperated with the utility in displaying equipment which included,dairy sterilizers, farm-type refrigerators, electric brooders, insect killers, feed grinders, soil heating, milk cooling, and a complete electric kitchen.

Outstanding was the Palco Coolair Cottage erected by the Pacific Lumber Co., and equipped with Frigidaire air-conditioning. Premise back of this display was the furnishing of a vehicle for practical and efficient demonstration of air-conditioning which at the same time would dress the merchandise for the market. Designed as a portable structure for future exhibition throughout the state, the cottage was beautifully finished to carry the atmosphere of home appeal, and consequently place the visitor in a receptive mental attitude. It was efficiently insulated with a 4-in. fill between walls and ceilings of Palco bark.

The air-conditioning unit was of sufficient capacity to offset intermittent door opening and to maintain a 20 to 25 deg. temperature difference despite outside temperatures of 95 deg. The attractive interior plus this comfortable temperature permitted the registering of a "feeling" message upon the visitor that is highly important in demonstrating air-conditioning during the hot summer months in the interior valleys of California. The cottage attracted 5,312 visitors. It will be displayed throughout 1934.

A second exhibit that aroused commendation was a green house equipped with soil heating apparatus which was erected cooperatively by M. A. Ball of Hayward, Calif. This 12x10-ft. greenhouse will be a permanent part of the display. All types of soil heating applications were shown and explained. Such a greenhouse was to be erected for approximately $125.

The rural electrification display was under the supervision of A. M. Frost, manager of agricultural power sales of the Pacific Gas and Electric Co.

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Off-Peak Water Heating as a System Load Builder

SEVERAL years ago the attitude of many utilities was expressed by the question, "Can domestic water heating ever be a practical business?" Today the question is, "What is the best system of electric water heating for a utility to adopt? The effort to answer the latter question has brought forth so many systems for heating water electrically that progress in building this load is actually being delayed.

The desirability of domestic water heating load is unquestioned. It represents a potential increase of 175 to 350 kw.-hr. per individual meter per month, based upon an average four or five-room house with an average of 4.5 persons per family. How can the utility acquire the additional kilowatt-hours at a profit? Ultimate success depends upon adopting a system of water heating that will provide complete service to the customer at a price he can afford to pay and at a rate which will be competitive with existing fuel systems.

Two systems of electric water heating are well known and have been used quite generally for a number of years. They are (1) the high-wattage, small-capacity tank system (3-5 kw. and 10-18 gal.) and (2) the low-wattage, large capacity tank system (1-3 kw. and 75-100 gal.). Various characteristics of the different systems of water heating will influence the decision as to the type of service to be advocated and sold by the utility. These are:

a. Hot water service rendered
b. Kilowatt-hours per month required to deliver standard hot water service
c. Diversified demand on generating station, distribution substation and consumer transformers by the total household load
d. Retail price of water heater installed, size of tank, capacity of elements, appearance, etc.

The high-wattage, small-capacity tank system has certain definite advantages. It is quick to recuperate after large draw-offs because of its high rating. It occupies a minimum of floor space and operates at very high tank efficiency due to the small exposed area. It is flexible in is performance and will adapt itself to a wide variety of customers. It has the disadvantage of having a relatively high individual demand which will frequently coincide with the other household electrical demands, including the range for the reason that hot water is usually drawn

Consumption and System Demand for Various Types of Water Heaters

	Kw.-hr. per mo.	Kw.-hr. per year	Demand per customer at gen. station	Demand per customer at substation	Demand per customer at transformer
Lighting and appliances.....	35	425	0.236 kw.	0.212 kw.	0.400 kw.
Lighting, appliances and cooking	160	1,920	0.910	0.820	2.000
Lighting, cooking and manually controlled 5-kw. water heater	335	4,020	1.610	1.450	3.350
Lighting, cooking and automatic 5-kw. water heater.	492	5,904	2.000	1.800	4.000
Lighting, cooking and 2.5-kw. 100-gal. night storage water heater	528	6,336	0.910	0.820	2.000
Lighting, cooking and .75/1.5-kw. 30-gal. off-peak water heater	497	5,976	0.960	0.860	2.100

during the cooking period. Most of the energy is used during the day period due to the quick recuperation. The cost of wiring may be somewhat high when compared to low-wattage systems.

The second system, frequently referred to as the "night storage system," embraces the use of a 100-gal. tank to provide the necessary storage. As it is charged only during the night hours (9 p.m. to 7 a.m.) it does not add to the day or evening peak. Ten hours is required to recharge the tank after a maximum draw-off of hot water. The system, while definitely advantageous to the utility, has the disadvantage that if the tank is emptied of hot water no more can be obtained for a minimum of 9¾ hours. Due to the great size and weight of the tank it offers a problem of installation in the home.

Of more recent origin is the twin-unit system with a 30-50 gal. tank which is clearly a sound compromise between the two systems just discussed, since it eliminates the disadvantages of both and incorporates the advantage of each. In the case of a 30-gal. tank equipped with a 750-unit located in the bottom and a 1,500-watt unit located one-third of the way down from the top, each controlled by an individual thermostat, the lower or "base load" unit places a large part of the total energy used during the night hours. This unit will furnish practically all of the required energy for minimum and normal days, which together represent 25 days of each month. The upper or "booster" unit is therefore idle most of the time but is always ready to supply energy automatically for maximum days. Obviously the diversified demand of the upper unit for a number of customers will be low because it is furnishing energy for a very few total hours per month and then usually during the morning. The tank size is not impractical, the efficiency is good, the rate of recuperation if emptied is ample and the demand on the utility system is low.

This is the system of water heating best adapted to and generally accepted and used for off-peak installations.

The accompanying table gives figures covering characteristics and demands for a household equipped with the various water heating systems which have been discussed. The figures are not typical of any utility nor are they an average for several utilities but are purely relative to prove the advantages of a properly designed water heating system. Any utility may make a study of this kind based upon actual conditions on its own system. The increases in demand and consumption of the various type of water heating systems are correct for the average customer installation.

Although the night-storage installation, because it does not increase the demand, would appear to be the most advantageous from the utility's standpoint its disadvantages from the standpoint of the consumer preclude its being recommended as providing complete and satisfactory water heating service.

The last installation, employing twin-units on a 30-gal. tank with a 4-hour off-peak period will provide eminently satisfactory hot water service to the customer without appreciably increasing the demand on the utility's system. Because of its load characteristics it warrants a promotional rate that will make electric hot water service competitive with any other type of fuel.

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Advantages of Off-Peak Water Heating

By A. C. McMICKEN
General Sales Manager, Portland General Electric Co.

Portland General Electric Co. has been selling water heating under an 8-mill controlled water heating schedule for almost five months. Experience to date has been entirely satisfactory with the rate, the type of installation adopted and the excellent service rendered to customers. Among the advantages of this type of controlled installation over single heating unit installations and flat rates are:

1. The entire water heating load is off-peak, thus fully justifying the 8-mill rate.
2. By requiring two heating units (base and booster), each separately thermostatically controlled, the demand is kept low and the load factor high. The base heaters on the average do 80 per cent of the work.
3. By selling fully assembled, thoroughly insulated "package jobs" which can easily be removed and which suffer little depreciation, the best possible service to the customer is insured. Customers can always have ample storage capacity to meet changes in size of family or other conditions, as "package jobs" can be taken back and at small cost to the customer, a larger or smaller unit installed.

Some of the advantages from the standpoint of the customer of this type of water heating service are:

1. An ample supply of hot water on tap day and night.
2. A very low cost per gallon of hot water used.
3. A water heating installation, which at small cost can be changed to meet increased or decreased needs for hot water.
4. A very low installation cost due to the use of "package jobs" equipped with 240-volt heating units, both of which are wired to one meter. So far our water heating customers, on the average, use 386 kw.-hr. per month at a cost of $3.09, and have all the advantages of ample storage, quick recovery, automatic hot water service.

A low minimum charge of $1 per month without regard to the size of tank or wattage installed, makes installations of this character all-year-round energy users, while in many cases flat rate installations were cut out during certain months of the year. The accompanying rate schedule sets forth in detail the conditions under which this type of service is supplied.

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Off-Peak Water Heating Market Possibilities

By S. P. McFADDEN
Vice-President, Puget Sound Power & Light Co.

ALMOST two years' experience, during which 1,000 installations have been made, has provided us with definite information on the commercial and sales possibilities of metered off-peak water heating. In introducing this service we stressed the necessity of studying each customer's needs so that proper installations adapted to these needs could be made and so that these initial customers would provide a solid foundation on which to provide future sales.

From this experience we are convinced that off-peak water heating can be adapted to any customer's requirements at a reasonable installation and operating cost. Our next step is the development of an extensive market. There is real need for continuous hot water service in every home. The majority of our customers are not conscious of this need because they do not know the advantages of such service. In order for them to desire this service and realize its importance it is necessary to conduct an extensive promotional and educational program.

At the present time continuous electric hot water service is in much the same position as electric refrigeration was three or four years ago and the electric range ten years ago in the Pacific Northwest. In my opinion there is a similar opportunity for load building with water heating as existed for refrigeration at the time of its introduction. In the case of refrigeration the market was speedily developed by a number of national advertising programs. As yet the water heating market does not have this advantage and for that reason local promotional programs must take up this slack.

This company now is conducting an educational campaign among all employees so that they will be thoroughly familiar with the service, its advantages and the sales story for continuous water heating service. During 1934 off-peak water heating load will be our major sales objective. The water heater will head the list of appliances in our spring and fall campaigns, and during the summer we will conduct a campaign devoted to water heating alone.

We will use direct mail material for creating both dealer and consumer interest in this service. In addition there will be an extensive newspaper advertising program.

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Typical Off-Peak Water Heating Rate

CONTROLLED RESIDENTIAL NON-INDUCTIVE WATER HEATING

Meter Rate

Application: For residential non-inductive water heating in approved closed tank installations when used in connection with other residential service.

Territory: Available in the entire territory served by the company from alternating current distribution system only. Not available from direct current service.

Rate: 0.8c per kilowatt-hour.

Discount: None.

Minimum Charge: One Dollar ($1.00) per month.

Special Conditions

1. Service under this schedule will be available at least eighteen (18) hours per day. The company reserves the right to so control the supply of energy that service may be cut off for one or more periods each day, the total duration of such period or periods shall, however, not exceed six (6) hours in any day. So far as is possible the period or periods during which service is cut off will be the same from day to day but the company reserves the right to change the period or periods without notice if operating conditions make it necessary.

2. The company will furnish and install at its own expense a watthour meter for measuring the use of electric energy and, in addition, an enclosed switch and fuse box for manual control of the service and a clock actuated switch or other device for cutting off service during the period or periods specified above. All wiring and equipment furnished and installed by the company at its expense shall remain the property of the company and may be removed by the company upon discontinuation of services hereunder.

All wiring shall be enclosed in approved metal conduit.

No equipment other than electric water heaters to be served under this schedule will be supplied with electric energy through this service.

3. Electric water heaters shall be non-inductive, of types and characteristics acceptable to the company and shall be designed for operation at 240 volts.

4. Water heating installations in excess of one (1) kilowatt shall consist of two heating units, each controlled by an approved thermostat.

5. Electric service under this schedule may be limited to six (6) kilowatts capacity at the option of the company. The maximum allowable wattage capacity of tank heaters shall be:

75 watts per gallon for thirty (30) gallon tanks or smaller;

62½ watts per gallon for forty(40) gallon tanks;

60 watts per gallon for tanks over forty (40) gallons.

6. The size, type, method and manner of installation shall all be in accordance with this schedule and the Rules and Regulations governing this service as now or hereafter issued or approved by the Public Utilities Commissioner of Oregon and the company will refuse to supply electric service to any installation which it finds is not in strict compliance therewith, but in no event will the company assume any responsibility for any accident, risk or hazard arising or growing out of the making or existence of any installation and/or the operation of such installation thereafter.

7. This schedule is not applicable to seasonal use of water heating equipment.

RULES AND REGULATIONS

The following rules and regulations are laid down to insure, insofar as possible, satisfactory hot water service to the customer under this schedule and will be rigidly enforced.

1. The size of any installation (capacity of tank and wattage of electric heaters) must have the approval of the company.

2. The total watage of heaters applied to any one tank shall not be in excess of the following:

For any tank having a capacity of thirty (30) gallons or less, 75 watts per gallon.

For any tank having a capacity of forty (40) gallons, 62½ watts per gallon.

For any tank having a capacity in excess of forty (40) gallons, 60 watts per gallon.

The booster (upper) heater shall not have more than twice the wattage of the base (lower) heater.

All heaters shall be designed for operation at 240 volts and the company reserves the right to measure the wattage of all heaters installed under this service.

3. All tanks having a capacity of thirty (30) gallons or more shall be equipped with two (2) heaters separately controlled by approved thermostats. On installations assembled from standard units the booster (upper) heater and/or its controlling thermostat shall be located twenty inches (20″) below top of tank and the base (lower) heater and/or its controlling thermostat, fifty-four inches (54″) below top of tank. Other methods of installing thermostats may be permitted after test and acceptance by the company.

Heaters must be of the non-inductive type and variety, type, grade, make and manufacture must be approved by the company before their use will be permitted under this schedule.

4. Under this schedule the installation of electric heaters will not be permitted on any tank to which furnace or range coils are directly connected.

If customer desires to use furnace or range coils as an auxiliary source of hot water supply the coils must be directly connected to an uncovered tank with connections from this tank to a second tank, proper insulated, on which the electric equipment is installed.

5. The installation of a relief valve is required if cold water supply passes through a pressure reducing valve.

6. The following plumbing requirements will apply to all installations assembled in place.

All new tanks installed shall be extra heavy, galvanized and shall comply with all city, state and underwriters' codes. Installation of electric equipment will be permitted on standard tanks now in use provided tank has had not more than three (3) years of service and is apparently in good condition. Tanks shall be mounted at least six inches (6″) from any wall and at least twelve inches (12″) from smoke pipe or uncovered furnace.

Hot water pipe from outside circulation type heater shall be connected directly into side of tank, **not** into hot water lead from top of tank. The flow of hot water in this pipe shall not be restricted further than the restriction obtained by the use of one-half inch (½″) pipe.

Cold water intake shall be through bottom of tank and Gaines Valve or other approved diffusing appliance shall be used.

The hot water supply line shall be connected at the top of the tank and in the horizontal lead, at a point as close to the tank as possible, there shall be constructed a heat trap consisting of a vertical drop in the line of at least two inches (2″).

7. All tanks equipped with electric heater or heaters shall be insulated with approved covers which will retain at least 85% of the heat normally radiated from an uncovered tank at a maximum temperature of 175° F. in a room temperature of 68° F. No cover will be approved unless produced by a recognized manufacturer whose product, submitted to the company for test, has been found to comply with all requirements.

Covers made from corrugated paper shall be not less than two and one-half inches (2½″) thick. Covers made from mineral wood, balsam wool or other recognized insulating materials need not exceed two inches (2″) in thickness provided the required efficiency is obtained.

Top of tank and top edge of side cover shall be covered to a depth of not less than two and one-half inches (2½″) with approved insulating material and bottom edge of cover must be sealed air tight.

Tank covers not in themselves fire resistant must have complete outer covering of fire resistent material.

When the type of installation is such that the thermostats are concealed by the tank cover, openings shall be cut in the cover directly over the thermostats of a size sufficient to permit proper inspection of the thermostats. Those portions of the cover which are cut out shall be replaced and sealed so as to complete the insulating cover and prevent air circulation.

Outside circulation type heaters and hot water pipes leading from heater to tank must be covered with four (4) ply pipe covering of approved manufacture.

8. Each unit of the heater installation shall be controlled by an approved thermostat.

Thermostats shall be so constructed that operation depends upon a metallic contact between the terminal of the thermal strip and the wall of the tank. Circuit making and breaking operation must be positive and rapid with contacts held firmly together when circuit is closed.

Settings shall be such that maximum temperature at top of tanks shall not exceed 175° F. Where thermostats are mounted on the tank at the locations specified herein they shall be set to cut out at a temperature of 150° F. The company will on request furnish information as to the settings to be used for any other installation permissible under this rate. Thermostat settings recommended will be those obtained by calibration under water.

9. The company will inspect all installations and reserves the right to refuse to supply electric service to any such which in its judgment does not comply with these rules and regulations.

The company will also inspect and test all types of factory assembled installations which are submitted for that purpose or which are proposed to be installed for service under this schedule, and will refuse to serve such installations, if in its judgment, the size, type, method of construction or other features are such that the intent of these Rules and Regulations is violated to the extent that discrimination will be shown and the use of such equipment will work a hardship on either the customer or the company.

Any inspection and/or testing of any installation and/or equipment is assumed solely and only to guard against such discrimination and hardship, and it is expressly understood that the company, in making such inspection or testing, assumes no liability for any accident, risk or hazard arising or growing out of the making or existence of any installation and/or the operation of such installation and/or equipment thereafter.

About Folks in the

Selling Game

Edward Safford is now proprietor of the Mission Electric Co., one of the oldest electric firms in Santa Barbara. The firm was originally owned by Salsbury Feld, author and continuity writer, and for many years operated by various managements. It is now completely owned by Mr. Safford who operates the construction department himself while his wife handles the merchandising end of the business. Complete revision of credit and public policy, and more effort on construction work are being given the business by Mr. and Mrs. Safford. A recent job has been the wiring of the new S & K Market at State and Ortega Sts. Mr. Safford previously worked for Mission Electric and ran the work on the court house, one of Santa Barbara's most famous structures.

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¶**Fred C. Foy,** at one time assistant advertising manager of the San Joaquin Light & Power Corp. and assistant general manager of the Seattle Gas Co. and more recently manager of the Los Angeles office of the J. Walter Thompson Co., advertising agency, has become sales promotion manager of the Shell Oil Co. with headquarters in San Francisco.

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¶**J. R. Gabbert,** manager of publicity of the Southern Sierras Power Co. and former real estate commissioner, is now president of the Riverside Realty Board.

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¶**Ed Schafer,** formerly salesman in the North Bay area for the California Electric Wholesale Co., joined Gus Hymes not long ago and jointly they operate the Hymes-Schafer Hardware & Electric Co. in San Anselmo, Calif.

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¶**Kaemper - Barrett** Corp. Ltd. will change the name of their organization to Wholesale Electric Co. The firm is located at 1118 Mission St., San Francisco. It handles the Standard Electric range, and other electric appliance lines.

Buys Interest in Mission Electric

Just as **Electrical West** was announcing his receipt of honors as the best salesman of electric ranges among dealers, under terms of the National Electric Cookery Council's contest, William C. Harvey, for seven years affiliated with Guilbert Bros. Electric Co. in San Jose, bought an interest in the Mission Electric Co. at 58 South Second St., San Jose, from C. A. Rylander.

Mr. Rylander has become affiliated with Westinghouse Lamp Co. in the Los Angeles territory. Mr. Rylander was formerly with the Westinghouse Electric Supply Co., San Francisco, when it was still known as the Fobes Supply Company.

The Mission Electric Co. is owned jointly now by Mr. Harvey and Roy M. Butcher, electrical contractor, who conducts a contracting business separately from his elaborate home shop at 1020 Sherwood Ave. Mr. Harvey brought to the Mission Electric Co. the Monarch electric range which he has sold for many years at the Guilbert Bros. Store and will likewise handle Westinghouse refrigerators in that territory. A complete line of appliances and lighting equipment is carried in the Mission Electric store.

▼

¶**Louise Berger,** popular and energetic range demonstrator for the San Diego Consolidated Gas & Electric Co., was named by President W. F. Raber as chairman of the women's committee on Sept. 15. She succeeds Mary Caroline Lynn, who resigned after completing two highly successful years as chairman. Miss Berger has built a large clientele of friends for her manner of demonstrating ranges to purchasers on the company's lines. She always keeps an interesting assortment of recipe pamphlets to distribute and help them with their problems in cooking.

▼

¶**Leo J. Meyberg** executives, including Al H. Meyer, president, N. G. Sues and Herb Zenker, northern and southern California sales managers, respectively, made a trip to the East to confer with principals served by this distributing firm.

▼

C. H. Isaac is the live wire manager of Palmer Electric Store, 234 East Main St., Medford, Ore. He helps to keep Medford on the map as a merchandising as well as an apple and pear center.

For the whole Northwest territory Sydney A. Beck is district manager for the Estate Stove Co. operating from Portland, Ore.

▼

¶**Pierre Vinet** has been made district manager for the Coast Counties Gas & Electric Co. at Pittsburg, Calif., a gas property of the company. Mr. Vinet has been sales manager at the Santa Cruz office for some years. T. H. Underwood has been made district manager at the Gilroy office. Mr. Underwood was previously at Santa Cruz also.

▼

¶**George A. Hughes,** president of the Edison General Electric Appliance Co., Chicago, visited various cities on the Pacific Coast during the last month conferring with the field sales force and distributors of Hotpoint ranges and water heaters and investigating market possibilities for equipment of this type in 1934.

▼

¶**H. O. Stains,** formerly of the Edison General Electric Appliance Co. representing Idaho and Utah, will now have charge of the Standard Electric Stove department at the Zion Cooperative Mercantile Institution at Salt Lake City, according to Bill Swartz, district representative.

▼

¶**H. B. Squires,** veteran Pacific Coast manufacturers' agent and one of the founders of the H. B. Squires Co., which he later sold, died recently in Los Angeles after an illness of several months.

▼

¶**F. B. Connelly Co.,** Portland, Ore., distributors of Grunow refrigerators and A.B.C. washers and ironers have moved to new and larger quarters at 16th and Lovejoy streets.

▼

¶**George H. Eberhard Co.,** 290 First St., San Francisco, has been appointed distributor for the Grunow organization, which includes refrigerators, radios and household appliances manufactured under the General Household Utilities Co.

▼

¶**L. P. Monti** is engineer in charge of Underwriters' radio laboratory in San Francisco, recently established at the request of Pacific Coast cities having appliances sales ordinances.

▼

¶**R. H. MacCauley** was appointed representative of Coast Radio Supply Co., Atwater Kent distributor, in Alameda and Contra Costa territory.

DEALER LETTER No. 4

PACIFIC GAS AND ELECTRIC COMPANY

245 MARKET STREET
SAN FRANCISCO, CALIFORNIA

Gentlemen:

Do you remember that about this time last year a lot of people were saying: "I'm going to give PRACTICAL gifts this year"? And they certainly did.

It is a great idea and apparently it will be the keynote of Christmas buying this month. Right now, thousands of shoppers are going out of their way to find things that are usable as well as ornamental.

What could meet these gift requirements better than a quality Electrical appliance? We hope you are not overlooking this great sales opportunity.

Manufacturers have gone far in making their appliances suitable for gifts. Even since last Christmas they have introduced new automatic features, concealed mechanisms, safety devices, and many other improvements that will stimulate replacement business as well as new business.

But more important still, from the gift buyer's standpoint, is the "eye appeal" of the modern appliance. New designs; smart, modern cases, gleaming chromium and colorful enamel—all these are making Electrical appliances the perfect gift—beautiful as well as useful.

Let us encourage this sensible attitude toward Christmas giving with vigorous advertising and prominent displays. It can easily be made a permanent and regular stimulus to fall business.

Sincerely,

H. M. Crawford

Gen. Sales Manager

YOUR TIE-IN AD HERE
TELLS PROSPECTS THAT
YOU SELL
THE APPLIANCES ADVERTISED BY
P·G·&E·

¶A. M. Sweeney, formerly manager of the production and distribution division of the Refrigeration Department of the General Electric Co., has been appointed sales manager of the department. Mr. Sweeney will be remembered as sales manager of the Pacific Coast division of the old National Lamp Works from 1924 to 1929, in which year he joined the Electric Refrigeration Department in Cleveland.

▼

¶S. G. Hibben, manager of the commercial engineering department of the Westinghouse Lamp Co. for the past 15 years, has been appointed director of lighting of that organization. He is well known on the Pacific Coast in connection with his work with the lighting schools conducted in past years by the Pacific Coast Electrical Assn.

▼

¶As part of an intensive winter sales promotional plan, the Frigidaire Corp. is including a 13-week coast-to-coast radio broadcasting program over 57 N.B.C. stations which will be known as "The Cruise of the Seth Parker." The programs will originate in the after cabin of the picturesque four-masted windjammer "Seth Parker" on which that noted radio character is undertaking a round-the-world cruise. The broadcasts started Tuesday, Dec. 5 They will continue for 13 weeks from that date.

▼

¶B. Badrian, who for many years was connected with the General Electric Co., the Pacific States Electric Co. and the Hurley Machine Co., respectively, on the Pacific Coast and was later with The Society for Electrical Development, has joined W. L. Goodwin and G. W. Axmacher in the organization of the A-G-B Associates, a manufacturers' agency with headquarters at 522 Fifth Ave., New York.

▼

¶H. Freeman Barnes, sales promotion and advertising manager of the Incandescent Lamp Department of the General Electric Co., visited various Pacific Coast cities during the last month, conducting meetings with the sales organizations distributing G.E. Mazda lamps. He gave several talks before electrical gatherings in which he explained the new technique of lighting sales with particular reference to the relationship between good lighting and optometry.

▼

¶Howard King, engineer for R.C.A.-Victor Co., with his special department handling Victor centralized sound systems and antenaplex systems for hotels and apartments, has been moved to the Leo J. Meyberg Co. in San Francisco and is to have his headquarters there.

▼

¶G. C. Pyle Radio & Electric Co., for the past six years located at 7915 Seville Ave., Walnut Park, Calif. moved into a new store at 2660 Santa Ana St., South Gate, Calif. In addition to wiring the firm merchandises radios and electric appliances.

New Lines *You Can Sell*

Auto Battery Charger

General Electric Co. Merchandise Department, Bridgeport, Conn., has announced a 5-amp. Tungar battery charger for use in home garages. It is portable and has no switches or adjustments. A special connector provided with the charger is permanently connected between the battery and a receptacle which can be installed on the car. In charging the battery the two leads of the charger are simply plugged into the receptacle and into an outlet. A newly developed mercury Tungar bulb is used.—Electrical West, Dec., 1933.

▼

Illuminated Cleaner

Apex-Rotarex Mfg. Co., Oakland, has placed on the market a new vacuum cleaner known as Model B82 which has three distinctive features. The first is wrist steering, which is an application of the swivel principle so that the handle turns freely. A second feature is the introduction of a pedal which permits easy foot pressure to adjust the cleaner to rug naps of varying heights. A two-speed motor, which is double-rubber mounted, permits cleaning of light scatter rugs or the heaviest type of carpet or rugs. An additional feature is a built-in light for dark corners. List price is $54.50.—Electrical West, December, 1933.

▼

Automatic Waffle Iron

Landers, Frary & Clark, New Britain, Conn., has developed an adjustable automatic waffle iron which automatically regulates and maintains the heat at which it is set. It is also equipped with a signal light. It is rated at 660 watts and carries a retail price of $8.95. Another new product announced by this company is a "Turn Easy" toaster which is chromium plated with a black enameled top and base. Its retail price is $3.50.—Electrical West, December, 1933.

▼

Appliance Cord Reel

Mitchell Specialty Co., Holmesburg, Pennsylvania, has developed an electric cord reel which is a replacement cord for irons and other appliances. The reel is clamped to ironing board or table and provides 6 ft. of cord which automatically reels in and out with so-called featherweight tension. A swivel mounting permits free movement in any direction. An additional 6 ft. of cord is provided for connection to a convenience outlet.—Electrical West, December, 1933.

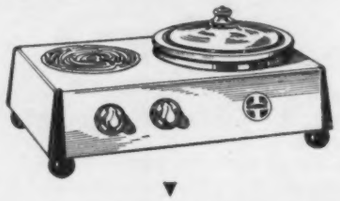
▼

Automatic Toaster

Utility Electric Co., St. Louis, Mo., has placed on the market an automatic oven-type toaster which toasts two slices of bread both sides at the same time. A bell rings when the toast is completed and the toaster automatically goes back to low heat, keeping the toast warm. The toaster also is available in non-automatic type. List price, $11.50. Holbrook, Merrill & Stetson, In., are factory distributors on the Pacific Coast.—Electrical West, December, 1933.

Grill-Casserole

Swartzbaugh Mfg. Co., Toledo, Ohio, has placed on the market a combination casserole and hot plate for light cooking in the kitchenette apartment. The hot plate contains a 700-watt, three-heat unit and the casserole a 500-watt, three-heat unit. Dimension are 19x6 in. The casserole can be used for all kinds of casserole dishes and for roasting and baking.—Electrical West, Dec., 1933.



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Water Heater Manual

Westinghouse Electric & Mfg. Co., Mansfield, Ohio, has issued a new sixteen-page catalog describing the entire line of Westinghouse electric water heaters. The catalog covers types and sizes to meet every central station load condition as well as the great variety of applications required by home owners and other types of users. It includes storage tank heaters, strap-on heaters and heaters of the side-arm circulation and immersion types.—Electrical West, Dec., 1933.

▼

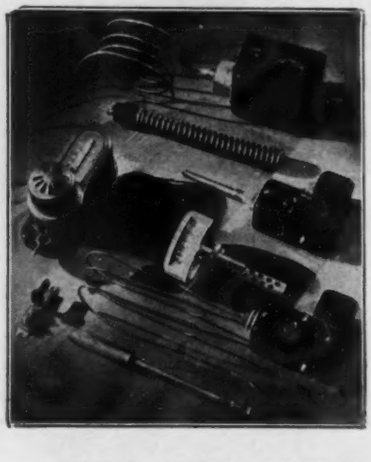
Blackstone Washer

Blackstone Mfg. Co., Jamestown, N. Y., announces a new washer, Model D, which features a one-piece construction, full family size, porcelain-on-steel tub with a new type depressed bottom for quick and complete drainage. A triple-vane water circulator of high blade design is declared to increase washing efficiency and to prevent dead washing areas. The washer is equipped with a new improved Lovell wringer and includes a special Blackstone safety feature. — Electrical West, December, 1933.

▼

Temperature Control

Edwin L. Wiegand Co., Pittsburgh, manufacturers of Chromalox heating units, announce a new line of temperature controls for use in connection with various heating applications. The line comprises devices for indicating and controlling temperatures in tanks, machines, hydraulic press platens, ovens and furnaces, melting pots and other equipment. Thermostats for controlling the temperature of electric units used for heating rooms, isolated shops and offices are also included. Bulletin TA-120 describing this equipment is available.—Electrical West, December, 1933.



NRA

WE DO OUR PART

. . Retailers Unsatisfied
. . Construction Code Deadlock
. . Wholesalers Resist Blanket
. . Manufacturers Doing Nicely
. . CRA in the Red

Well represented in the Denver NRA parade recently was the electrical industry. Public Service Co. of Colorado and Mountain States Telephone and Telegraph Co. had spectacular floats and marching men. Charles S. Russell, Public Service Co. artist who designed the float is seen talking to Uncle Sam above.

THE Blue Eagle of Uncle Sam's National Recovery Administration fought valiantly against stormy head winds during the past month. General Johnson himself took to the stump in the hinterland on behalf of the bird, stemmed much agrarian revolt in the cyclone belt and hurried back to his office to put more codes to work, thus disappointing many far Westerners who hoped to catch a glimpse of him, as well as to hear his forceful words. Effective and encouraging as his words are, though, it is his strong determination to make the codes work and to get industry codified that is of most vital necessity. For there is a widespread uneasiness among business men who have put so much time and energy into code effort and have so little to show for it yet.

Retailers

¶**Retailers** of one kind or another have been busy getting under the code. Yet there is complaint aplenty that the "apprentice" clauses are being used to hire experienced sales people, hold them a while, drop them, take on a new crew of "apprentices"—and thus chisel on labor provisions. NRA, however, is improving its technique to treat with such shenannigans. In California Assembly Bill 2400 deputizes every district attorney to prosecute evasions and malpractices on national as well as state codes. Lack of organization among electric retailers, as such, leaves many who are without affiliation in the other retail associations, such as hardware, dry goods, furniture, somewhat unprepared as to code enforcement and operation.

¶**Explanatory** comments on this retail code have been issued by the U.S. Printing Office. A 75-page booklet, it gives ample detail as to interpretation, operation, and procedure for separate codes. (Your chamber of commerce probably has copies available.) The basic code only prescribes hours, wage minimums, and has but four trade practice rules—one on advertising and selling methods, one on the use of the NRA label, one on prison made goods, a fourth on company scrip. The only price control is its "stop loss" provision.

Contractors

¶**Labor** seems to have thrown not a wooden shoe but a wooden head into NRA machinery designed to help the construction industry rebuild itself. As late as Nov. 20 the whole status of the Construction League master code, with its 20 or more subcodes, including the electrical contractors' was in the air. Meetings were reopened to hearings, a new draft of a blanket code submitted by NRA. Labor had effectively gummed the works. Not the least of this gum was that spread when the I.B.E.W. influenced a number of union shop contractors throughout the country to write letters to Washington protesting the National Electrical Contractors Assn. code. According to "Business Week," labor's idea is to break the construction industry code into its respective crafts and file separate codes for each. Result—nary a code yet, a large part of the public works program already started, and no means to insure anybody getting a rightful share of its benefits, labor or employers.

¶**NEMA** also seems to have become frightened over the inclusion of motor service shops in the contractors code, and has entered a protest, which has been answered by motor shopmen. Score at the end of the third quarter, O to O, with the ball still in the middle of the field and both teams in a huddle.

Wholesalers

¶**"Same kind** of progress as last month," says Al C. Nicoll, president of the Pacific Coast Division, NEWA.; which interpreted means more than it sounds. Although the radio wholesalers have joined forces with the 27 other types of wholesalers which NRA is desirous of bringing together under one blanket wholesale code, the electrical wholesalers are resisting this inclusion. They point out their closer relation to the electrical industry vertically than to the wholesale industry horizontally. If electrical wholesalers are brought under the blanket, they will seek a sub-code to piece out and cover their own peculiar problems over which the blanket does not stretch.

Manufacturers

¶**Washing and ironing** machine manufacturers had their code signed by the President last month. It sets a 40-hr. week; minimum wage for men of 40 cents. Specifies cash discounts and quotations f.o.b. factory; prohibits sales below costs determined by a standard accounting system, trade-in allowances to wholesale or retail outlets; limits guarantees to one year.

¶**Western** representatives of manufacturers generally report their code greatly improving prices, competition, sales and accounting methods. In fact, the entire supplies situation seems to have felt the strength of the manufacturers code. Attention of manufacturers, now that open prices prevail, is turning to better sales and advertising methods to create sales, instead of to the old chisel.

California Dilemma

¶**With a score** of disappointed associations which have worked months, attended hearings, made revisions, done all in their power to speed through a California Recovery Act temporary code, hammering at the doors of state buildings for action, the Commissioner of Corporations had to lock the doors tight. Reason—no funds. Filing fees so far have been about $2,500, license fees a little more; expenditures $40,000. San Francisco association chiefs held a council of war Nov. 28 to determine whether Governor Rolph be petitioned to make the CRA subject for a special session. Decided to find out why some 40 codes, supposedly heard aplenty and amply revised, cannot be approved so that the 25 cents per employee license fee can come in to help. Decided to form an association of associations to stimulate action, work out mutual and inter-relating problems.

The Month in Pictures

Commercial and Sales...

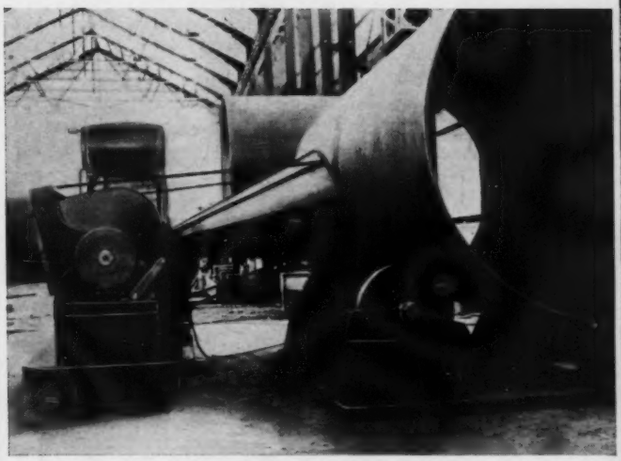
Soil heating was demonstrated to 39,000 people at the California State Fair, Sacramento, at the Pacific Gas and Electric Co. model farm exhibit

E. E. Buerkel turned gypsying to good account for Incandescent Supply Co. in northern California, (he is appliance manager.) He brought dealers a full appliance display room on wheels from which they chose generously of Christmas lines for the holiday trade

Particularly appropriate was the Better Light—Better Sight idea applied to the children's room of Alhambra, Calif., public library, where 200-watt Solax units increased the illumination 30 per cent over previous lighting

NRA is working full force in one Western appliance factory, as this picture of the entire personnel of the Apex-Rotarex Mfg. Co., at Oakland, Calif., indicates. G. B. Schuyler, vice-president in charge of the company's west coast factory (center) says that there are 83 employees here, a 30 per cent increase in personnel; and piece, hourly and salary schedules have all been stepped up. The Oakland plant has been working shifts to fill orders for washers and ironers in the Western area served by it

- - Engineering and Construction



Not pill boxes, but merely 630,000 cu. ft. of concrete already poured at Boulder Dam at the end of October (above). Refrigerated water is circulated in the dam to assist cooling

Looks like a phonograph, but really it's a giant X-ray with which all of the 75 miles of welded steel seams in Boulder Dam's penstocks are inspected. Built by G.E., the 300,000 volt machine will "look through" four inches of steel

University of California men swim in this new underwater-lighted pool at the new gymnasium in Berkeley, (left)

First store window installation of Electrical Product's new Lumenarc gaseous tube in combination with mazda lamps makes real daylight in Desmond's new store front, Los Angeles. Tubes and lamps are mounted in mirrored troughs

Engineering of the Month

Off-Peak Water Heating Performance Analyzed

This Graphic Presentation of the Operating Characteristics of Various Combinations of Tanks and Heaters Should Be Helpful to the Utilities Planning to Increase Load and Revenue From This Service

By GEORGE M. PALO
Puget Sound Power & Light Co.
Seattle, Wash.

WITH the interest that off-peak water heating is invoking among the utilities of the West, the analysis of performance made by the Puget Sound Power & Light Co. should be helpful in determining the manner in which the best advantage can be taken from this potential load. These studies proved that consumers can be supplied with adequate, low cost hot water at a profit to the utility by utilizing power at off-peak periods and providing tanks with reasonable storage capacity equipped with the proper sized heating elements to insure rapid recovery after large draw-offs.

In making the analysis, various combinations of tanks and heaters were tested in a special laboratory. The heating characteristics of clamp-on, insert, and side-arm circulator units assembled in standard tanks, and factory-built heaters of the foregoing combinations were tested to obtain data on the maximum draw-off, standby or idling losses, energy requirements and water temperatures under the draw-off schedule compiled by the National Electric Light Association which specifies that the average draw-off of hot water daily for an average family of 4.3 persons is 75, 50, and 20 gal. per day for maximum, normal and minimum days respectively. Assuming average conditions, the hot water installation should be capable of providing 75 gal. of water daily above the minimum temperature of 120 deg. F.

From the consumer's standpoint, the water heater should be of minimum size for the service required, highly efficient and capable of meeting a variety of hot water withdrawals. From the utility's standpoint the installation should have a minimum diversified demand on the company's system and a good load factor. Small flat rate heaters continuously on the lines were discarded as being costly to the utility and unsatisfactory to the consumer. Large units on intermittent service would give satisfactory results but place inordinately high demands on the system as well as being impractical from the standpoint of first cost.

As a small unit on off-peak service would not bring about a fast recovery in case the tank was drained, it seemed apparent that satisfactory off-peak service required a small base unit operating in conjunction with a larger booster unit. Thus the small unit could take care of intermittent withdrawals with the booster aiding recovery after heavy demands on the tank. With a base unit of 750 watts and a booster of 1,500 watts, it was calculated that the standard 30-gal. tank would be capable of delivering 75 gal. per day on a four-hour off-peak schedule. The 30-gal. tank was taken as standard because the average home is equipped with this size which the prospective buyer might be reluctant to discard. A strong sales incentive could be provided if the standard tank could be adapted to satisfactory off-peak service.

In making the tests, water entering the tanks was measured by a standard water meter. To obtain accurate information on the heating characteristics of the various combinations of heaters, a special tank having nine thermometer wells placed 6 in. apart down one side was used. Thermometers also measured incoming and outgoing water temperatures and the temperature of the hot water was taken at the start and the finish of each draw-off as it was being discharged into a wooden barrel for weighing and obtaining the mean temperature of the run. To obtain a record of the energy consumption of the base-unit heater and the booster heater, a watt-hour meter and a recording ammeter were inserted in their respective circuits with a recording voltmeter providing a graphic picture of the voltage at all times.

The results of these tests are best told in graphic form.

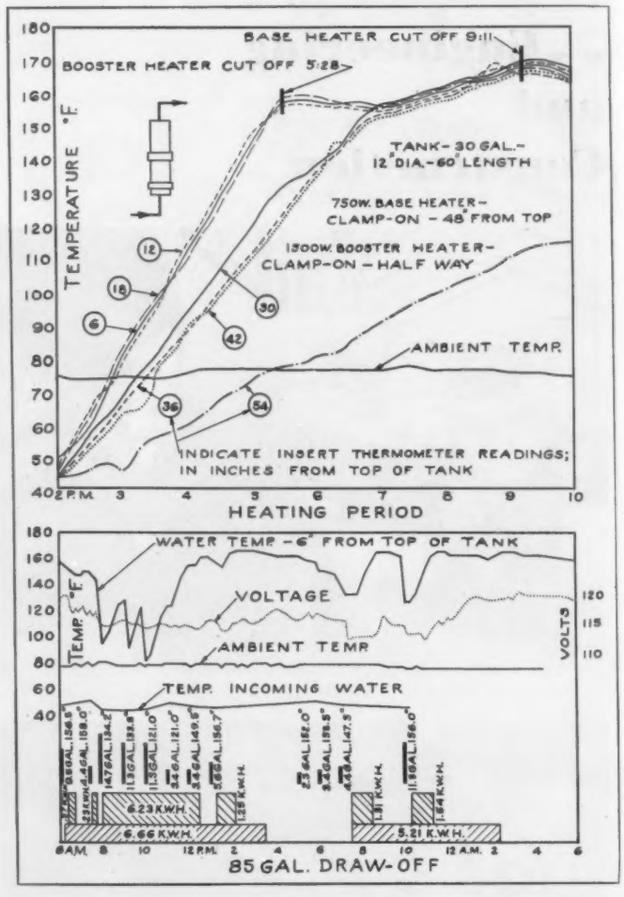
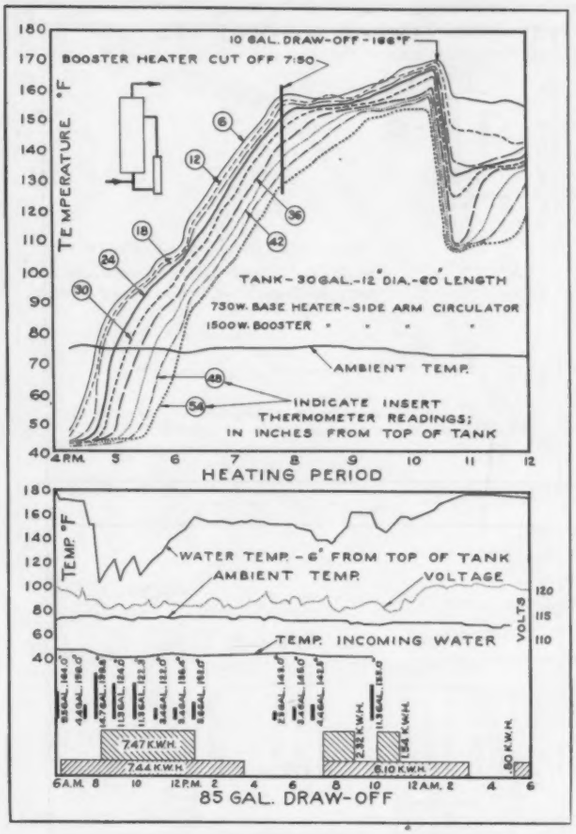
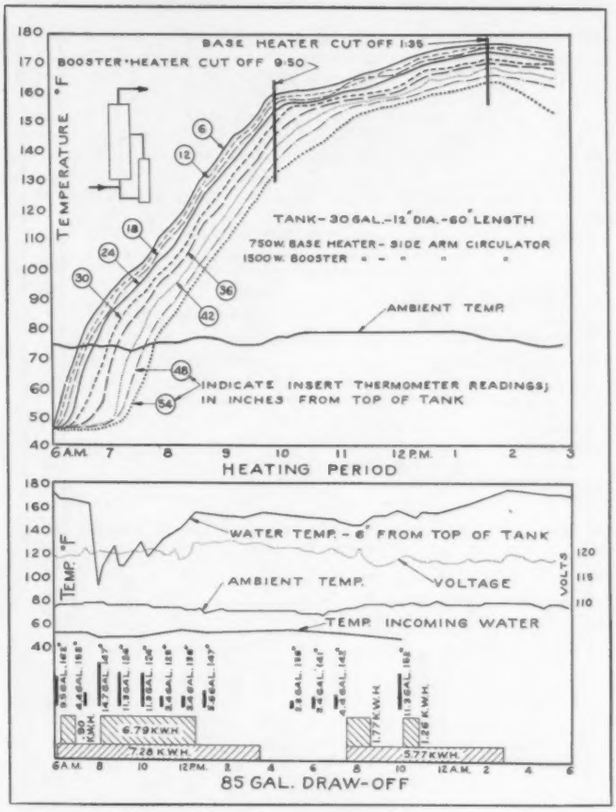
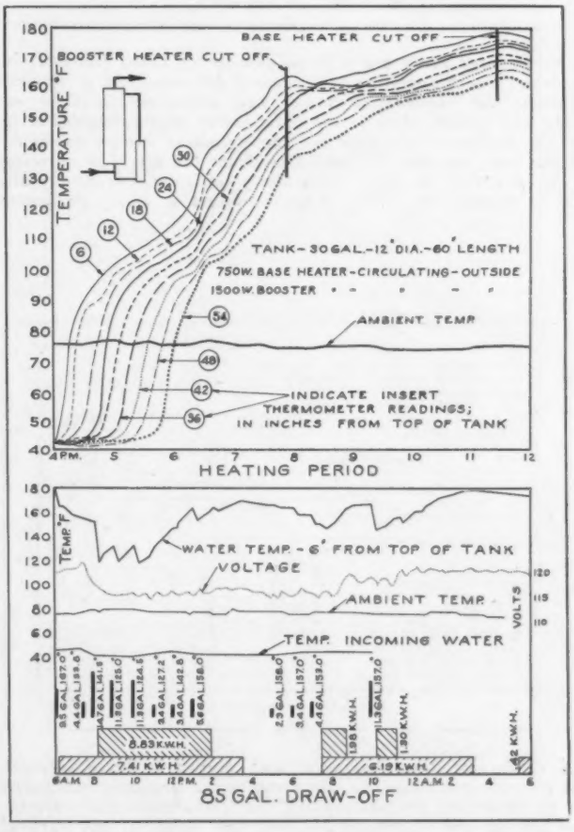


Fig. 1. Clamp-on heaters—Two combinations of clamp-on heaters were tested, the first with the 750-watt base heater 4 in. from the bottom of the tank, and the 1,500-watt booster unit installed midway between the top and bottom and the second with the base heater 12 in. from the bottom with the booster unit 20 in. from the top. Of the two, the second combination was superior both in efficiency and draw-off characteristics. With the booster heater located near the top of the tank, the water in the top of the tank heats up much faster which lowers the time of operation of the booster unit and increases the recuperation characteristics of the tank. With the first combination, the tank would be capable of giving relatively large amounts of warm water but very little hot water when subjected to the 75-gal draw-off schedule. This combination also required more energy as the booster unit operates a long time. Conclusions drawn from the tests indicate that for a 30-gal. tank, the booster unit should be located not lower than 20 in. from the top of the tank as this combination barely came within the limits prescribed for the draw-off schedule. The minimum temperature of the draw-off water was 121 deg. F., only 1 deg. above the permissible lower limit. Furthermore, with the booster unit high up on the tank, the load factor is better as the base unit operates longer and the booster unit cuts out more rapidly which also reduces the demand of the water-heating installation







In the accampanying series of charts, the amount of draw-off, the time of the draw-off, the temperature of the water and the energy consumption are indicated for each combination of heaters. Thermostats controlling both heaters were set

Side-arm Circulators

Fig. 2 (above)—Circulator connected to bottom of tank with riser entering 30 in. from the top of the tank. This combination is unsatisfactory, not being able to carry an 85-gal. day without exceeding the minimum allowable water temperatures. Energy consumption high due to excessive use of booster.

Fig. 3 (upper left)—Circulator, bottom connected, riser connected 15 in. from top of tank. This combination carried an 85-gal. day with a minimum temperature of 122 deg. F. However, the energy consumption of 25.67 kw.-hrs. was high due to excessive operation of the booster which also increased the demand. Rated as relatively inefficient.

Fig. 4 (lower left)—Circulator, bottom connected, riser connected six in. from top of tank. Characteristics improve as riser is connected further up the tank. This combination carried the 85-gal. day with a minimum temperature of 124.5 deg. F. and with an energy consumption of 26.13 kw.-hr. Efficiency is improved despite the increasing energy consumption due to higher B.T.U. content of the water drawn off.

uniformly in all tests, the booster being set to cut off at 150 deg. F. and the base unit set to cut off at 170 deg. F., the maximum temperature above which alkaline deposits begin to deposit inside the tank and pipes and around the elements themselves.

After completing this study, the company filed an 8-mill, 4-hour off-peak water heating rate using a separate meter and time switch for the service. So far the use of the time switch has not added a new peak to the system at the close of the off-peak period as the booster element does not come on immediately unless withdrawals have been heavy during that time. Thus far the off-peak service has created a desirable load without an appreciable strain on the distribution system and water heating by this method is considered practical by the company and its consumers alike.

Tests made on assembled units using side arm circulators revealed several important points. In some types the riser entered the tank 6 in. from the top, in others it went directly into the top of the tank and in others, the hot water was discharged directly into the draw-off pipe. In some circulators, circulation in the riser was restricted by reducing the diameter of the riser just above the heater in order to ob-

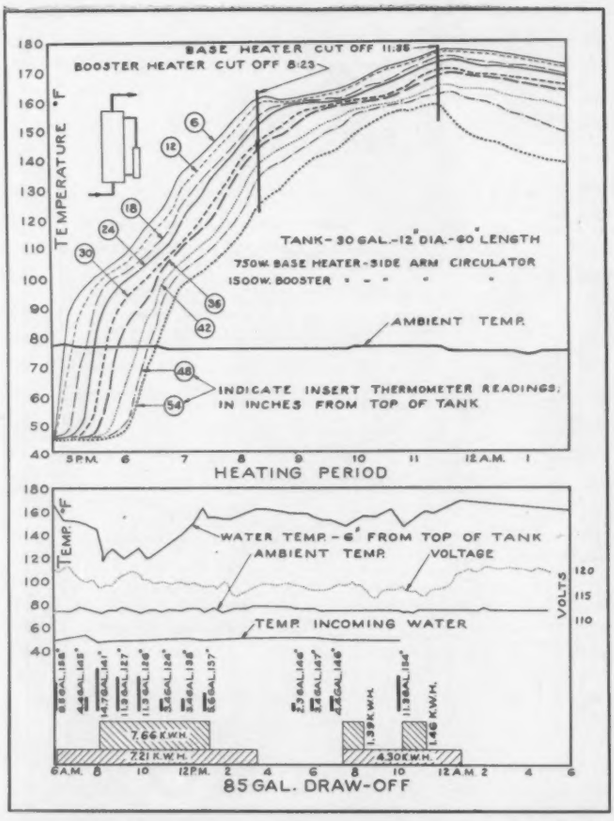


Fig. 5—Circulator connected 6 in. from the bottom of the tank, riser entering 6 in. from the top of the tank. This combination was the best of all assemblies of the side-arm circulator type. It combines a low energy consumption, a reasonable demand on the system with high draw-off temperatures and good recuperation. On an 85-gal. day, the total energy consumption was only 22.02 kw.-hrs. Connecting the circulator six inches from the bottom leaves a layer of cold water on the bottom of the tank which reduced radiation losses as well as eliminated the by-passing of cold water. This combination is recommended where outlets are available on the tank with the alternative of a bottom connected circulator with the riser entrance remaining 6 in. from the top of the tank. Where the tank does not have the necessary holes, drilling and the use of spuds probably will result in a leaky connection and experience has shown more satisfactory service results from substituting another type of heater with the proper connection

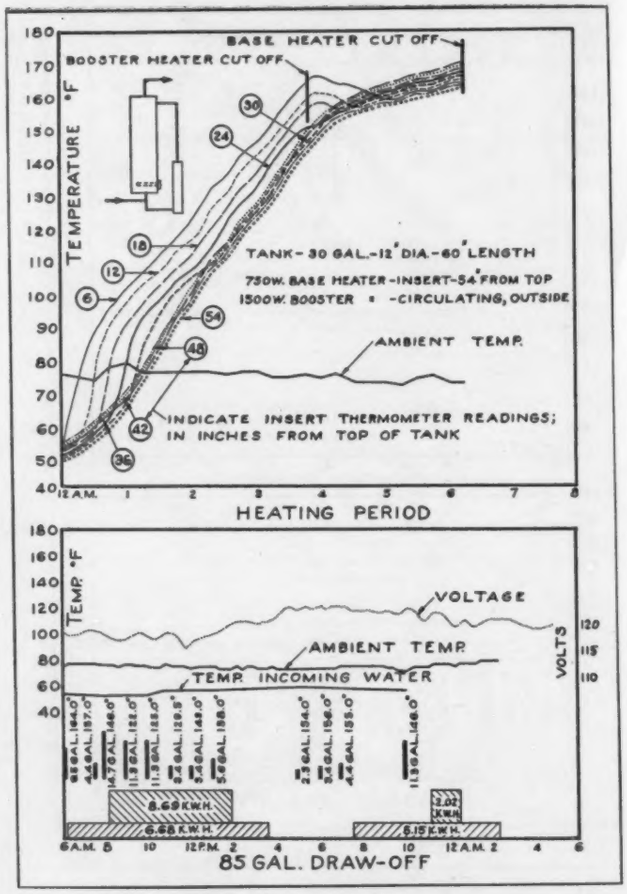


Fig. 6—Because there are a large number of small flat-rate, insert heaters now operating which could be converted to off-peak operation, the combination insert and side-arm circulator assembly was tested. The insert base heater was connected 6 in. from the bottom of the tank and the circulator bottom connected with the riser entering the tank 6 in. from the top. The combination is practical but not particularly efficient; better results could be expected by adding a second insert or clamp on heater.

tain hotter water and assist recuperation. While it accomplished these two objects, it did so at the expense of storage as the top of the tank gets very warm while the bottom remains cold. Similar troubles were experienced when the riser entered the top of the tank or the draw-off pipe, these two connections also allowing considerable by-passing of cold water through the heater.

A comparison of factory-built and assembled units showed that either type was satisfactory for off-peak water heating service. Clamp-on, insert, and side-arm circulator types, both factory-built and assembled used approximately the same amounts of energy for the standard 85-gal. day draw-off schedule. However, each type has some features that are better than those of others. One might be more efficient, another give a large usable output of hot water, another have a lower first cost, etc. Draw-off charts for factory-built water-heaters are similar to those of the assembled units of the same types of heaters.

Insulation of the tanks is especially important if good idling characteristics are to be obtained. Idling losses should not exceed the minimum monthly demand on the meter. With a bare 30-gal. tank and a side arm circulator, idling losses were found to be 1,000 watt-hrs. per hour with a temperature difference of 100 deg. To stay within the above limits, losses had to be cut to 175 watt-hrs. per hr. Tests on various covers varied from 180 to 335 watt-hrs. per hr.

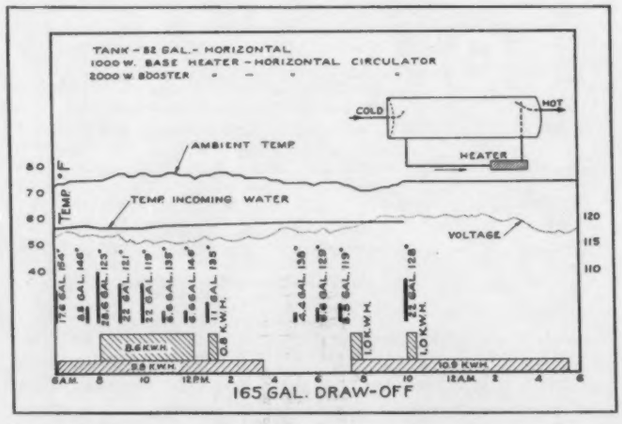
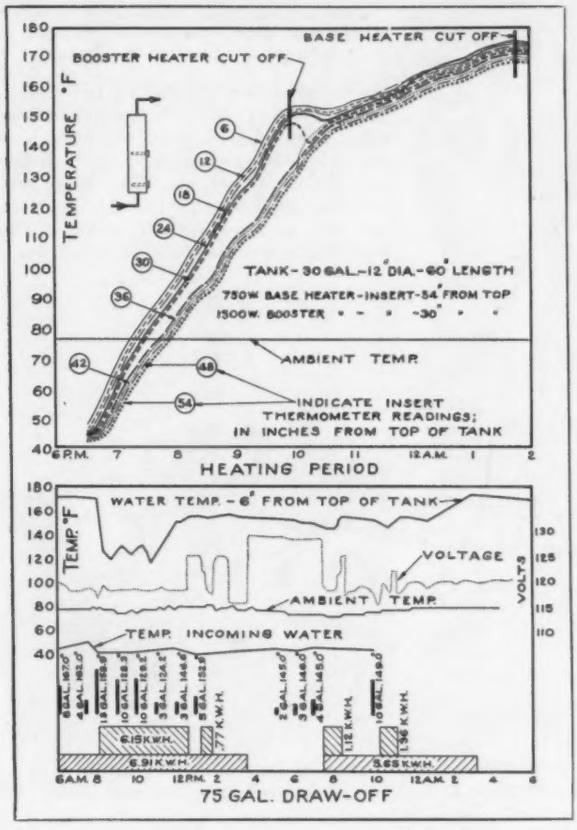
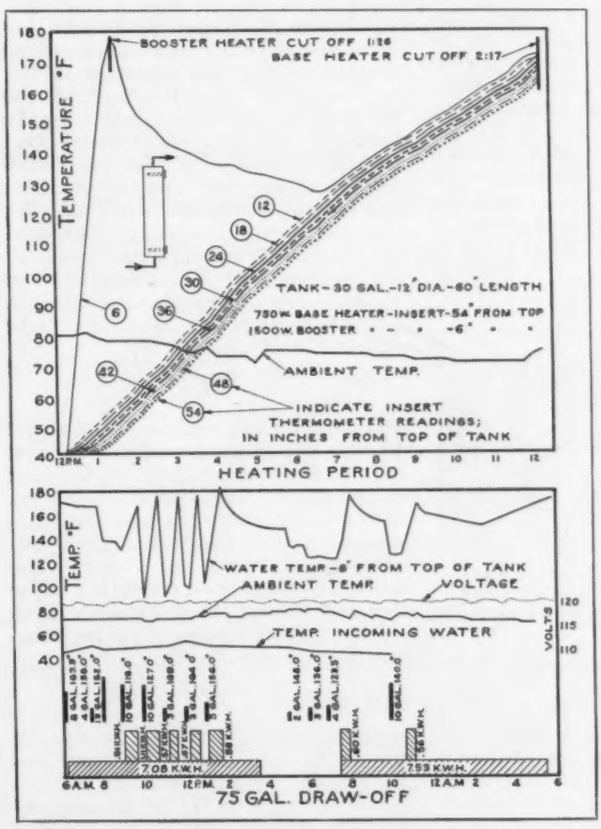


Fig. 7—This test on a horizontal tank proved to be of interest. Using the side arm circulator, the water in the circulator was found to be of the lowest temperature and the temperature difference between the top and bottom of the tank the lowest of any vertical or inclined combination tried. However, the short distance between the top and bottom of the tank in this position makes it difficult to prevent by-passing of cold water. The horizontal tank is best suited for service where draw-offs are small in quantity and frequent in number.





At first it appeared impossible to reach the lower figure without prohibitory cost but finally, by using a 2½-in., 13-ply paper cover, the top, bottom and joints of which are sealed with hair felt, the losses were reduced to 175 watt-hrs. per hr. on a side-arm circulator with a 6-in, top and bottom

Insert Heaters

Fig. 8 (upper left)—Three combinations of insert heaters were used. In all of them, the 750-watt base heater was placed 6 in. from the bottom of the tank. In Fig. 8, the 1,500-watt booster unit was inserted 30 in. from the top of the tank. As might be expected in the combination with the booster unit far down on the tank, the characteristics were similar to those of the clamp-on heater located at the midpoint. Recuperation was poor and temperatures were low under conditions of extended draw-offs. The total energy consumption for a 24-hr. period was 21.96 kw.-hr., of which the booster unit consumed 9.40. Under the 75-gal. draw-off schedule, the minimum temperature was 124.6 deg. F.

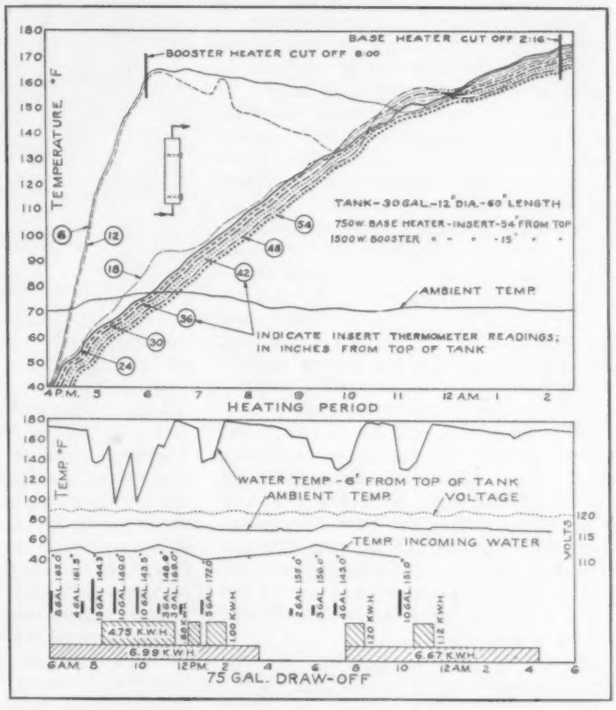


Fig. 9 (Above)—A booster unit 15 in. from the top of the tank struck the happy medium between the conditions shown in Figs. 8 and 10. In some respects it was superior to both and, as the chart shows, probably is the most satisfactory for the average consumer. This installation combines rapid recuperation with the ability to withstand continued draw-off, successfully meeting the schedule of an 85-gal. day. On the 75-gal. day the minimum temperature recorded was 143.5 deg., on the 85-gal. day, 129.5 deg., this combination being the only one of the three combinations to successfully carry the larger schedule. Energy consumption was but a little more than that of the most efficient combination, the total consumption being 22.41 kw.-hr. with the booster unit accounting for only 8.75 kw.-hr. Thus, the load factor is good and the demand low from this combination. It is apparent that care should be exercised in locating the heaters in the tank if a satisfactory installation is to be obtained. With the booster heater located too near the top of the tank, hot water capacity is sacrificed for efficient operation. Placed too far down the tank, both efficiency and water temperatures are sacrificed to the rather dubious end of obtaining large amounts of warm water. With insert heaters, the entire tank builds up as a unit, i.e., if a tank is full of 150-deg. water and one-half is drawn off and replaced with 50-deg. water, the entire tank will drop to a lower temperature and build up from that point.

Fig. 10 (Lower left)—With the booster heater located 6 in. from the top of the tank, recuperation was almost instantaneous. However, under continuous draw-offs, the tank delivery would break down and even under the test schedule, the minimum temperature recorded was 118 deg., 2 dg. under the permissible minimum. The energy consumption on this combination was the lowest of the three because rapid heating at the top of the tank acts to cut the booster unit out after a short period of operation. A total consumption of 19.91 kw.-hr. was measured for the 24-hr. period, the booster unit consuming 5.30 kw.-hr., the base unit operating 19½ hr. out of the 20 hr. allowed under the off-peak schedule. Hence the demand is reduced to the minimum and the load factor is extremely good, the low consumption being attractive to the consumer and, where the hot water demands are smaller than the average, this would be the best installation for both the consumer and the utility.

connection in which the base thermostat was set for a 20-deg. lag.. Asbestos was added inside and out to make the insulation fire-proof and the outer surface was neatly finished and lacquered with a fire-proof material.

The location of thermostats was very important and dependent upon several factors. It was desirable to have the base unit come on after small withdrawals and, as the base of the tank was the only place where an appreciable temperature change occurred, it was necessary to locate the thermostat controlling the base unit at the bottom. Also to obtain a good load factor by dividing the work between the base and booster units, the booster thermostat had to be set to operate lower than the base thermostat and located at or above the center of the tank.

With clamp-on and side-arm installations, the thermostats could be located in the same pockets as the units themselves. With insert units, the thermostats had to be located above the units to prevent water in the top of the tank from becoming too hot before the energy was cut off, preferably directly above the units they controlled.

With this investigation an effort was made to limit the top water in a tank to 17 deg. After some experimenting, it was found that with the side-arm circulator, setting the base thermostat for 160 deg. and the booster thermostat for 150 deg., satisfactory temperature control of the upper half of the tank could be obtained with efficient idling performance.

To follow tank temperature closely, the thermostat must be strapped to, and have metallic contact with, the tank and, a proper thickness of tank covering provided to eliminate the effect of outside temperatures and drafts. Proper facilities for accurately calibrating the thermostats also were necessary for satisfactory operation and good performance.

▼

¶ **"Electrical Insulating Materials"** is the title of a new publication just issued by the American Society for Testing Materials. It contains all of the 32 A.S.T.M. specifications and test methods covering electrical insulating materials. Several of the test methods and specifications are new ones issued since last June as tentative standards. They cover flexible varnished tubing, black bias-cut varnished cloth tape, asbestos roving and thickness tests for sheet and tape. Standards which were adopted this year and which are given in their latest form cover molded materials, insulating oils, asbestos yarns and tape, tests for resistivity and tolerances and tests for electrical cotton yarns. Copies of the publication may be secured from the society, 1315 Spruce St., Philadelphia, at $1.25.

▼

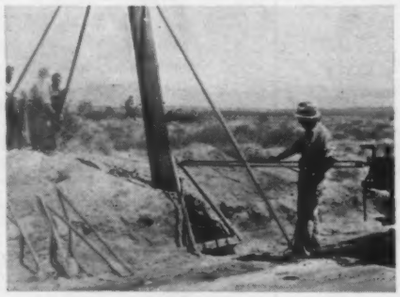
¶ **The Maywood Electric Co.**, of which Frank B. Sabin is proprietor recently moved from 4601-53d St., Maywood, Calif., to 4421 East 56th St.

Raising the pole from its original location with transformer gin and hoist to the level of the trench

Pole Line Moved by Ingenious Method

When the state highway near Victorville, Calif., was widened recently, a 33-kv. transmission line of the Southern Sierras Power Co. presented such a hazard that it was necessary to move the poles 5½ ft. to the east of the new highway right-of-way. An ingenious system of accomplishing this without interruption to service and with the employment of standard line tools and equipment was worked out by E. E. Cox, assisted by Martin O. Beach, both of the Southern Sierras organization.

The poles were originally set in higher ground than the road, but when the new drainage ditch along the highway was graded, it left some of them only 18 to 24 in. in the ground. The operation of moving the poles is shown in the accompanying illustrations. A trench was dug from the pole to the new hole with its bottom approxi-



Method of keeping butt of pole under control while it is slid along the trench to the edge of the new hole

mately 2 ft. above the pole butt in its existing location and about 3 ft. above the bottom of the new hole. Using a transformer gin and Coffing hoist the pole was then lifted out of the old hole and the butt set on two digging bars laid in the bottom of the trench.

A bar which served as a deadman was driven into the ground beyond the new hole and the butt was pulled over with a single sheave block. The butt was held under control at all times by a set of blocks strung from the top of the transformer gin to the line truck. The pole was securely supported by pikes. At the edge of the new hole the pole was again picked up with the hoist and set in place. The crew performing the job consisted of three men and the average cost of moving the line was approximately $5 per pole.

With gin and hoist moved, the pole is lowered into the new hole

▼

¶ **Complete** and up-to-the-minute information on both design and procedure for arc welding are contained in the new book "Procedure Handbook of Arc Welding Design and Practice," published by the Lincoln Electric Co., Cleveland, Ohio. The book is divided into eight principal sections or parts and contains 434 pages with about 500 illustrations and drawings. Each section deals with an important phase of arc welding and its application. It contains data on procedure, speeds and welding costs which are particularly valuable. Its price is $1.50.

▼

¶ **General Cable Corp.** has issued an interesting brochure describing its new type H H cable which is to be used in the United States for the first time on the Boulder Dam-Los Angeles transmission line of the Los Angeles Department of Water and Power. The bulletin presents a detailed and clear technical discussion of the advantages of this type of conductor for high-tension transmission.

▼

¶ **High-speed**, fractional horsepower motors have been applied to new duties in the aviation industry as the result of efforts of D. C. VanHorne, of the Los Angeles staff of the General Electric Co. By operating wing flaps on a new type of transport plane these featherweight motors assist in cutting 30 miles per hour from the landing speed of the plane.

A Company Is Judged by the Voltage It Keeps

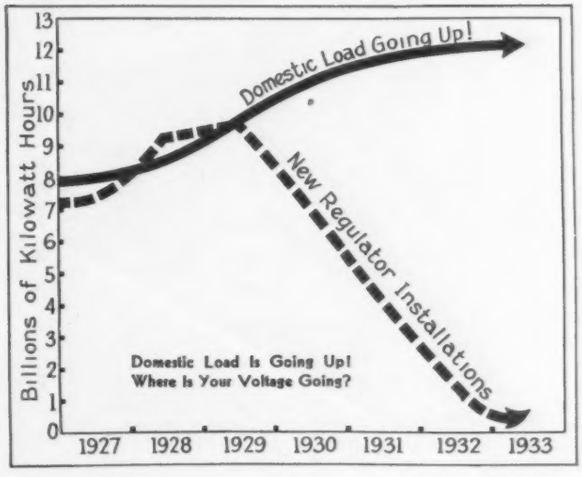
How's YOUR Voltage Regulation?

HOW are your volts when you deliver them to the customer's service entrance? Are they anemic? Too fat? Or just right?

It pays to know, because the current-consuming public is becoming more "volt conscious" every day. Poor voltage regulation is an insidious thing; too often the first symptoms are customer complaints.

Probably your engineering departments already know the facts; if they are not sure, a few thorough tests with recording instruments will quickly tell the story. Why not look into your regulation this week?

And if you need feeder voltage regulators, it will pay you to buy them now. Ask the G-E representative who contacts you. General Electric Company, Schenectady, N. Y.



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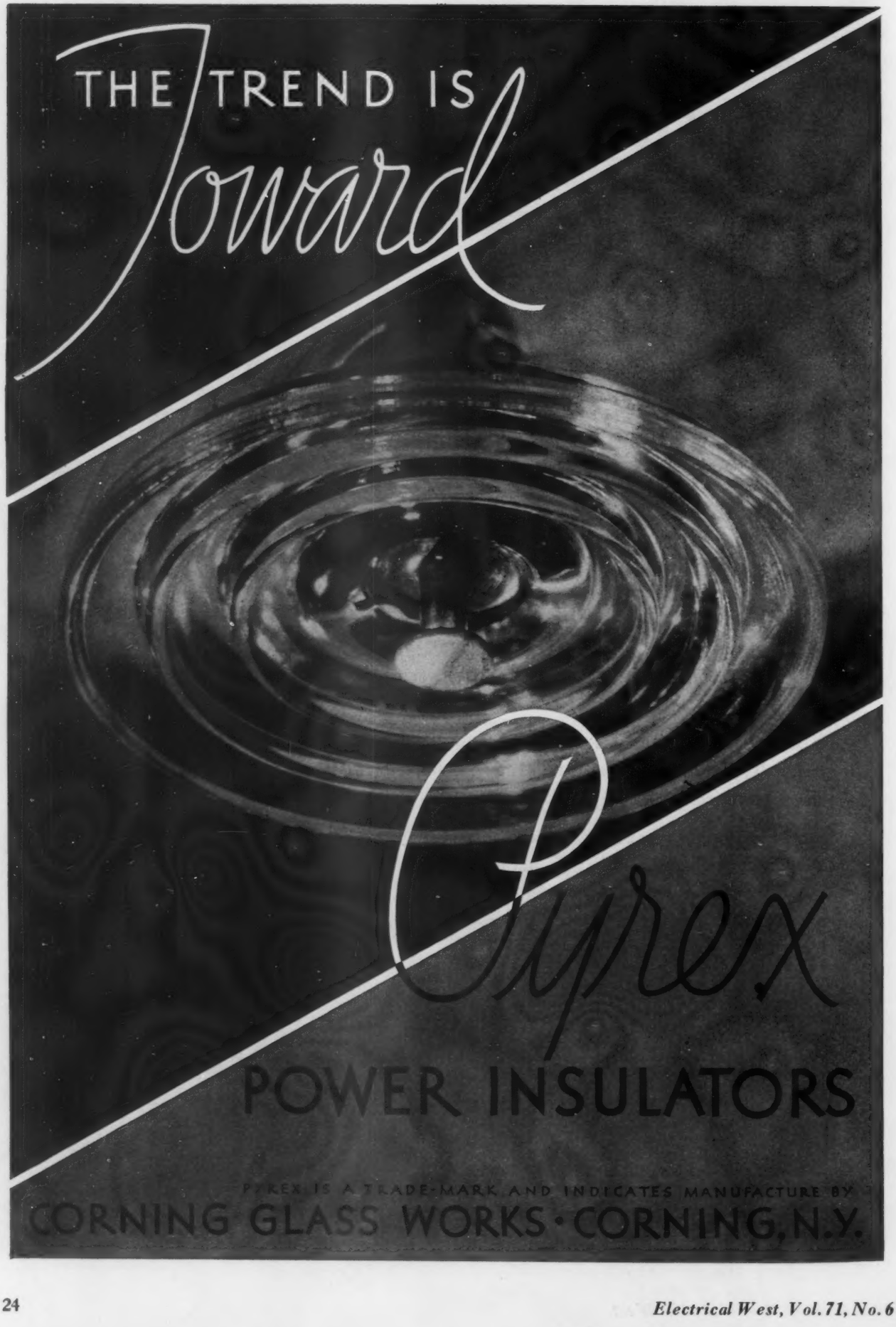
GENERAL ELECTRIC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PYREX IS A TRADE-MARK AND INDICATES MANUFACTURE BY
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Practical Maintenance Economy Measures

UNDER present conditions utility maintenance costs are lower than at any previous time for the same standards of maintenance because costs of materials and labor have been reduced. Because of the necessity for economy, operating men have adopted the practice of weighing carefully the value and need for every job and have found, by investigation, certain operations that could be dispensed with without impairment of service, as well as more efficient methods for handling system maintenance. In a report made before the Engineering Section of the Northwest Electric Light and Power Association several practical economy measures are presented.

Pole Stubbing

Instead of making complete replacement of an entire lead of poles when a large portion of them are in an unsafe condition, it is current practice to resort to stubbing only the defective units. By this procedure replacement is deferred, although the necessary maintenance charges are not. However, the line is kept in good operating condition even though not good in appearance. Deferred maintenance is not good business but deferred replacement such as in this case is an economy measure often necessary.

In the actual stubbing of a pole, stubbing bands are used in place of the conventional wire for attaching stubs. While the cost of doing the work is approximately the same, the use of stubbing bands has proved economical because the bands can be salvaged and used again whereas the wire has to be scrapped when the pole is replaced and the stubs taken out.

In many places it will be found that stubbing can be done where formerly the policy would have been to replace the pole. Even in first-class sections permission has been obtained to use stubs in front of vacant lots and other places where not unduly noticeable.

Patent types of pole reinforcements have been used in places where appearance is important. In some cases, where space is available, poles may be lowered into the ground where the wood above the ground line is in satisfactory condition. This eliminates the necessity for both the stub and the pole replacement for some time.

Tree Trimming

Trimming of trees along transmission and distribution lines is a constant source of expense in many sections of the country. Assuming that inspection reports indicate the location and amount of necessary work, the problem of keeping the trees trimmed deserves careful study from an economic standpoint. Some companies employ a regular tree expert, which has the advantage of avoiding unfavorable reactions from people due to improper trimming.

Many companies, however, prefer to have their own crews handle the work, usually having a man in charge who has had training or who is a tree expert himself. Where a considerable volume of work is involved cost figures varying from 67 cents per tree to$1.20 per tree are reported. The higher cost figures apply to the more careful jobs of trimming in parking strips where valuable trees are involved. In rural sections the costs are lower, usually around 50 cents per tree for trimming.

Comparative figures by certain companies which have used both the tree experts and their own crews indicate that under the same conditions, the tree experts can do the work for about 25 per cent less money but as a rule they will have to return more frequently and trim the same trees at least once per year.

The use of tree wire has many advantages under certain conditions. One utility stopped all tree trimming in residential districts of a first-class city and for the past three years has been using tree wire exclusively. Much unfavorable criticism from garden groups and others has been avoided. By using a grounded neutral 4-kv. primary system with single-phase feeders in residential areas, only one primary wire had to be protected if the secondary wire installation was in good condition. A good quality of tree wire in a moderate size can be installed for from 10 to 12 cents per foot and by putting a length of about 25 ft. for each tree the cost is about the same as trimming the tree for three years. Tree wire, however, should last 15 years or more. Where the wire rubs against a heavy limb it is also advisable to install a wire molding around the tree.

Damage claims from improperly cut trees or from injuries due to climbing a tree in which insulation has been worn from the wire may become a considerable item of expense. Arriving at the most economical solution between the cost of excessive tree trimming and the expense of damage claims and service outages, requires careful study, particularly in these times where all expenditures are carefully scrutinized.

Clearing Transmission Line Right-of-Ways

In cutting down brush and trees along private transmission right-of-ways, the problem of economical practice involves several different angles. It generally pays to do a thorough job which will last several years, although under present conditions some companies are only trimming and topping the brush in order to cut costs. The successful use of a Caterpillar tractor and winch to clear a right-of-way has been reported. All trees and stumps were uprooted entirely, piled and burned so that the right-of-way was left in a clean condition and required no further attention for a number of years. The labor cost of doing the work was about the same as that of cutting off the trees near the ground and burning them but the cost of the tractor was additional. This method probably would be successful only where the soil was fairly soft and trees of a moderate size..

Safety Work

Besides its humanitarian value, accident prevention work results in decided economies especially where companies are assessed by state industrial insurance departments. With the reduced volume of work, the pressure for speed cannot very consistently be kept up and this makes a favorable opportunity for insisting on a maximum of vigilance in handling work. With lighter loads it is possible to take high-voltage equipment out of service more readily for maintenance and inspection work.

One good method of attacking the problem of safety is to provide a trial by a small jury of fellow employees to fix the responsibility for every accident whether involving personal injury or property damage. One company using this method has assessed the cost of damage up to $50 against the individual where the jury holds him entirely to blame through his own negligence. This procedure has greatly reduced automobile accidents in this organization and claims resulting from damages.

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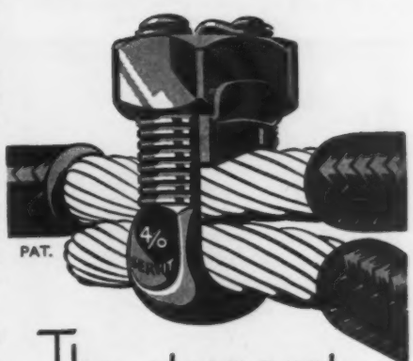

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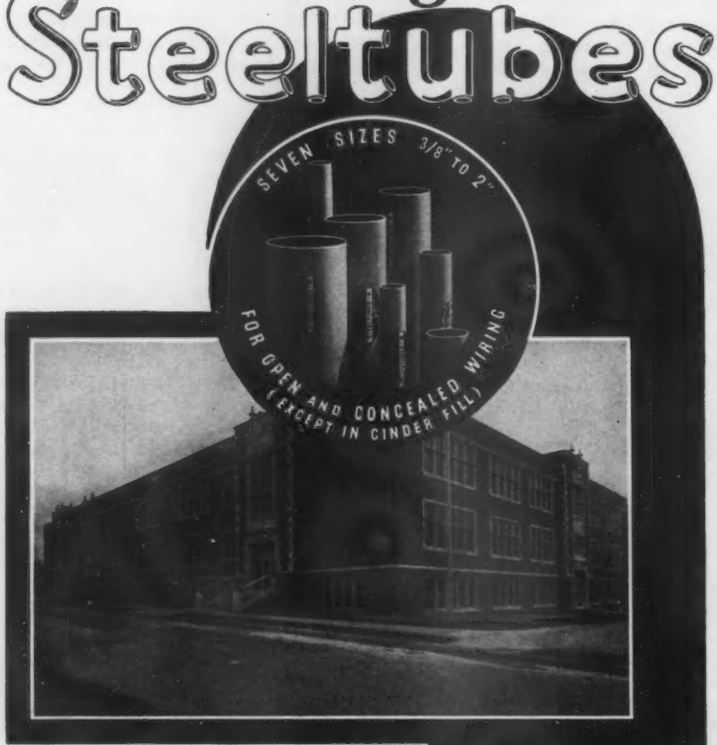
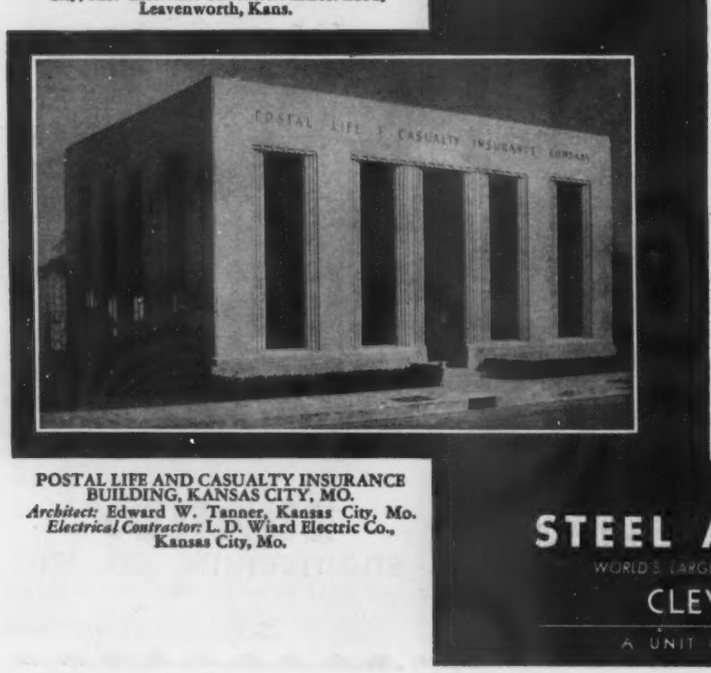


LEAVENWORTH, KANSAS, HIGH SCHOOL
Associated Architects: Feth and Hazelwood, Leavenworth, Kans.; Felt, Dunham and Kreihn, Kansas City, Mo. *Electrical Contractor:* Ernest Lord, Leavenworth, Kans.



POSTAL LIFE AND CASUALTY INSURANCE BUILDING, KANSAS CITY, MO.
Architect: Edward W. Tanner, Kansas City, Mo. *Electrical Contractor:* L. D. Ward Electric Co., Kansas City, Mo.

Kansas and Missouri step into the limelight with two new attractive buildings which will depend on Steeltubes for many, many years for the protection of their electrical circuits. Approximately 40,000 feet, almost eight miles, of Steeltubes was installed in the Leavenworth, Kansas, High School, and in the Postal Life and Casualty Insurance Building, Kansas City, Missouri.

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Steeltubes weighs less—handles easier—bends with less effort—cuts quickly—requires no threading—installs faster and speeds up the job. Contractors who have used it once never go back—but why don't you let us send you full information and a sample joint. In five minutes you will sell yourself. Write today—and put yourself with those that make money with Steeltubes.

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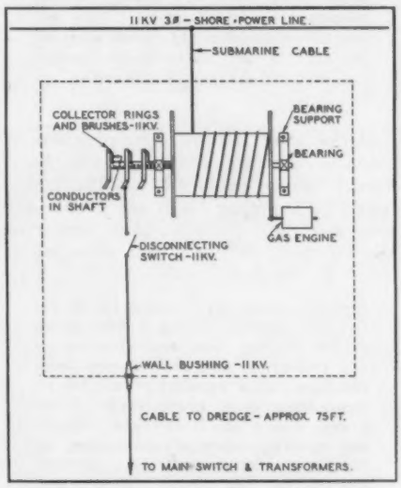
Service Cables on Electric Dredges

By G. DUNCAN, Pacific Electric Motor Co., Oakland

Problems involved in providing electricity at high voltage to the modern suction dredge, which can properly be classified as a floating industrial plant, are interesting and novel. In the case of the "Marshall C. Harris", we were dealing with a connected load of approximately 4,000 hp., with a 30 minute demand of approximately 3,000 kw. at 95 per cent power factor, the favorable power factor being due to the design of the plant, as previously described in Electrical West.

Moving over the working area at a distance of 2,000 to 3,000 ft. from the nearest shore power tap obviously calls for a flexible cable of rugged and reliable construction, together with a suitable reel for convenience in handling.



Layout of cable reel

The layout of most local plants is similar to that shown in the accompanying sketch. The cable barge is usually tied up near the stern of the dredge and connected by a short piece of cable. On account of the unavoidable heating of the cable on the reel, the size selected should be larger than sizes used for general distribution purposes.

There are many varieties of reels and collectors in actual use. The collector itself is similar to that used in the average wound rotor motor, except that it is spaced and insulated for 11,000 volts. The cable is usually connected from the reel to the collector rings by conductors placed in slots in the shaft below the bearing. Some designs use a hollow shaft and others place the bearing outside the collector, where the weight will permit. The reel is usually provided with some auxiliary drive, such as a gas engine, but can also be electrically operated. In operation the brushes must carry full load in a static position as the reel movements are very infrequent. The collector rings are "hot" except when the cable is disconnected at shore and should be shielded to protect against accidental contact.

Use of 11,000 volt service cables with collectors was first developed for San Francisco Bay, we believe, and is now generally accepted as best practice, compared to lower voltage services. With the use of the proper cable and collector there is little hazard and much to be gained in convenience as well as in voltage at the working end. Our own company, for example, has had many years of experience on dredging problems with local concerns and has designed and built 11,000 volt collectors, as now in successful use on San Francisco Bay. One of these that is well known, is to be found on the dredge "S. G. Hindes," owned by San Francisco Bridge Company.

¶"Whipstock drilling along the beach front of Huntington Beach brought an increase of 1,000 hp. in four months in oil drilling load to the lines of Southern California Edison Co., according to C. C. Stewart, sales engineer. Methods were found for drilling at an angle and tapping the pools of oil out under the ocean where regulation prohibits the placing of oil wells. Considerable litigation has resulted from this method of drilling, all of which had to be done electrically. The C.C.M.O. Co. recently installed 210 hp. in oil well rigs in the Richfield area. In the Venice field the Union Oil Co. installed 350 hp. in new drilling equipment not long ago.

WATER WHEEL RUNNERS

•

TURBINE RUNNERS

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GUIDE VANES

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GOVERNOR CONTROLS

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SAFETY DEVICES

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AUTOMATIC DEVICES

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REHABILITATION of hydraulic turbines—having for its object the lowering of kilowatt production costs with existing equipment—offers unusual opportunities for savings, particularly in the older units. Many of the more recent advances in hydraulic design may, at relatively small expense, be incorporated in equipment already operating for many years—to produce increased efficiency, dependability and safety, as well as a substantial reduction in attendance costs.

Specific examples of economies already realized are available to utility engineers. The experience of this organization in turbine rehabilitation is at your disposal without obligation.

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PELTON

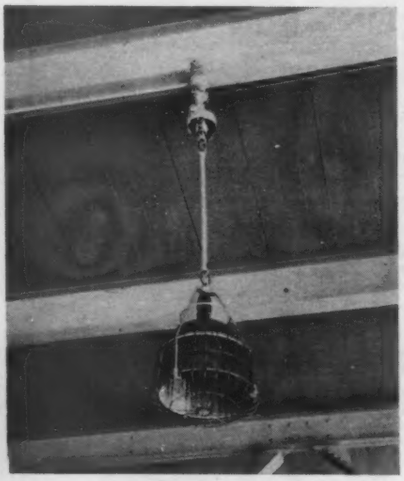
New Bear Cave

University of California Athletics Centers in New Gymnasium Fully Equipped Wth Electrical Facilities to Provide Air, Water and Light to the Cave of the Golden Bears

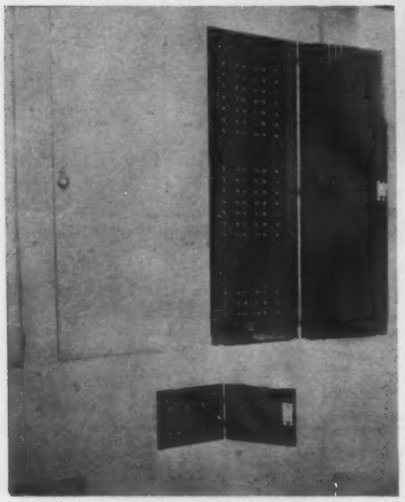
Where the football stars get special treatment—the A.S.U.C. quarters—one room has 9 sunlamps, mounted 8 ft. from the floor, under which the athletes lie upon long tables for sun treatments. In adjoining rooms are electric physiotherapy equipment, infra-red lamps, ultra-violet quartz arc, and diathermy apparatus

ELECTRICITY'S job around a big collegiate gymnasium consists chiefly of seeing to it that there is plenty of air, light, and water for the athletes and just plain students who use it. Lately it has a new task, that of providing auxiliary sunshine too. In providing these functions Hunter and Hudson, electrical and mechanical engineers for the recently finished University of California gymnasium, at Berkeley, exercised considerable ingenuity and originality. Installed by Ne Page-McKenny Co., electrical contractors, the electrical equipment is particularly complete.

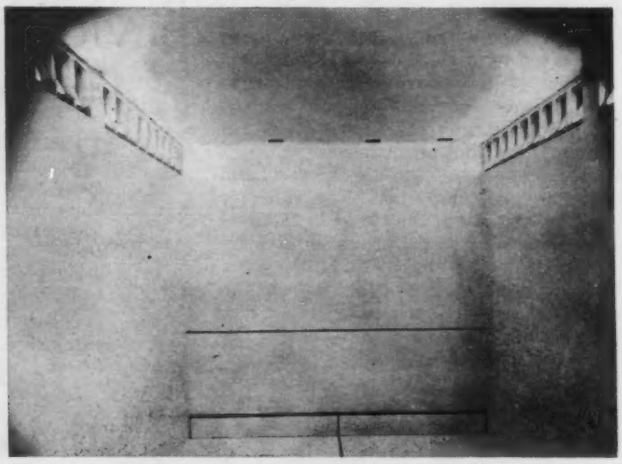
Center of interest at the athletic headquarters is the main gymnasium, where either several games or general athletic activities may require the entire floor, or special championship matches may require concentration of attention in the center of the floor. Ventilation is provided, (as illustrated here) by bringing fresh air in through four fan rooms, one at each corner of the building, cleaning and warming it

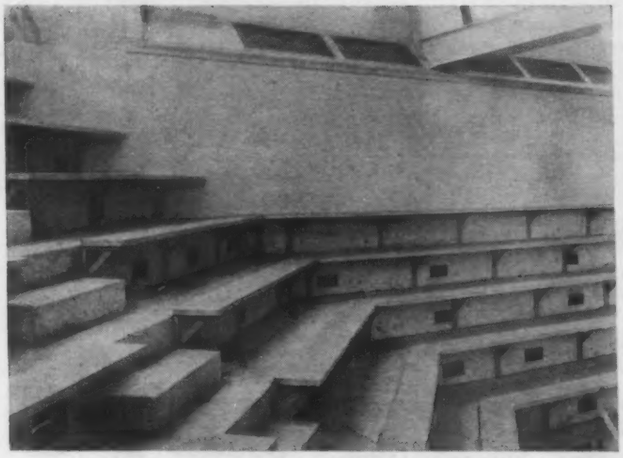


Deep bowl, high bay Curtis reflectors, guarded by screens, light the main gymnasium floor. Use is made of Westinghouse lock type disconnecting hangers, by which the fixture may be lowered on a lanyard to the floor for relamping. Control of gym lighting is centered at a Nofuz panel at one corner. The required pattern is preset on the panel; preset combinations are operated from the push buttons shown below

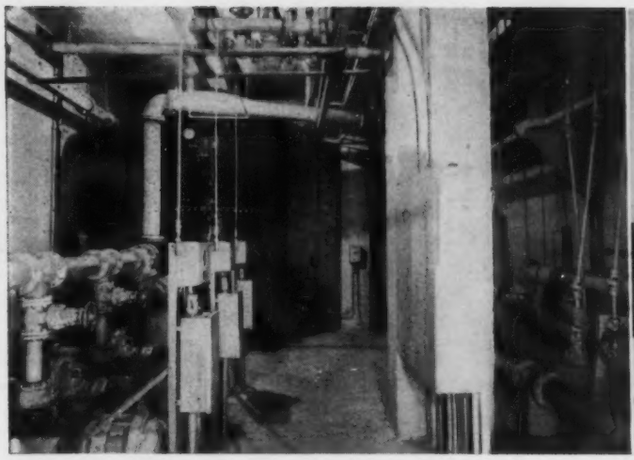


Squash courts are lighted by 44 reflectors, placed behind a wire mesh at the ceiling line and directed at the ceiling. They are unseen from the floor, give unusually uniform illumination over every inch of the court. Fresh air is brought through the openings seen at the ceiling of the front playing wall, in a vertical stream to the floor. Ventilating ducts exhaust the air from the court through the lighting grilles; thus draw off heat from the lamps too





Ventilation of the main gym is ingenious. Air is brought in high up at the sides through grilles seen in the upper part of the photo (left) and is exhausted through small grilles under the seats, each equipped with a damper with set screw adjustment. The entire chamber under the seats becomes a suction chamber and air duct



Draft of water for showers is great enough, when an entire class goes into the shower room at once, to deprive other campus buildings of water. So a large reservoir is provided near the swimming pool and near it a pressure tank, (shown above) in which compressed air keeps the water under pressure. Three pumps automatically feed water from the reservoir to the pressure tank, controlled by G.E. pressure governors which operate between pressures of 50 lb.-low-and-60-lb.-high and start and stop the 20 hp. motors through auto starters

Emergency lighting is provided by means of an Es-B-Es emergency lighting system, located in the main fan room. It consists of a large storage battery on a stepped-up, earthquake braced rack, and an automatic panel which cuts in this source of energy when power fails. Several lights in the auditorium or gym, and exits, are on the emergency system. Charging is done by means of vacuum tube chargers in the cabinet, at extreme left. The stepped-up racks give better access to the storage cells and permit ready servicing

over steam pipe coils, and blowing it into the auditorium through felt and muslin lined chambers to the walls of the upper auditorium. Air is exhausted through a large number of small grilles under the balcony seats, the space under the seats becoming a suction chamber for exhaust air.

Gym floor lighting comes from three 1,500-watt deep bowl Curtis reflectors over the center of the hall, (especially designed for high intensity lighting for match games or boxing events), 40 1,000-watt reflectors cover the main floor and 20 750-watt reflectors around the balcony. These are wired so that various patterns of light may be obtained. Control is centered in a panel high in one corner of the gym, at which the required patterns of lighting may be preset and operated in groups by either of two push button control stations through magnetic contactors.

The press row along the balcony is also wired for telephone and radio microphone connection to the outside. Conduit runs are made along the ceiling beams, then down the wall to the panel, terminating in a gutter. Nofuz switches are used throughout.

Ventilation and lighting of the squash courts, and the locker rooms is described in captions accompanying pictures on these pages. Lighting of each squash court is controlled individually by a push button which remotely switches on the lighting through magneetic contactors. Locker room lighting is done with moisture proof reflectors. Shower rooms are lighted by Holophane water proof reflectors, controlled from outside the room at a panel.

The swimming pool, illustrated on page 17 has underwater lighting units on both sides and at the deep end of the main pool and all around the diving pool. They are General Electric units, equipped with a long rubber cord normally coiled behind the unit. To relamp, the whole unit is unscrewed from its socket, pulled up to the surface. Wiring terminates in a pull box, accessible from the deck about the pool, and fitted with a stuffing box where the flexible cord terminates in them. Four floodlights mounted on top of the main building, and 10 lanterns about the pool provide illumination for night swimming.

Most ingenious is the ventilation of the locker rooms. The steel lockers are set in double rows with a 3-in. space between the backs of the cabinets, which space is used as an air suction chamber. Holes punched through the backs of each locker draw the air through the grilled front and out through the exhaust duct. The entire locker room is exhausted by this means, and thus odors from gym togs are drawn out immediately at the source

Water supply is elaborate and complete. A complete filtering and chlorinating system is installed. An interesting problem in pressure maintenance is described in one of the captions. So great is the draft of water when an entire class goes under the showers at once that an extra reservoir, and and an automatically supplied pressure tank, are used to maintain pressure without robbing adjacent buildings of water.

As might well be expected, the special quarters for the stars of football, baseball, track and basket ball, are provided with special therapeutic electrical devices, as well as a sunbath room. It is from this athletic cave that the Golden Bears come forth each season to match brawn and skill with the athletes of other colleges.

The new Cowell Memorial men's gymnasium replaced a wooden relic of many years standing on the campus. It is a unit with the new athletic fields adjacent and known as Edwards Field.

▼

¶**Pacific Coast Building Officials** Conference adopted the standard electric code as proposed by the Pacific Coast Electrical Bureau after the year of grace provided in the constitution of that organization. Thus the Standard Electrical Code of P.C.E.B. becomes the standard code for the Pacific Coast Building Officials Conference and will be used throughout the state where no previous local code is in effect.

▼

¶**A kidnap alarm** was shown in the "Charm" home in the Emporium on its third floor. A photo-electric cell device over the crib sounds an alarm if a beam of light across the crib is intercepted. A photo-electric cell is also used to ring a door chime as anyone enters the model home.

Electric Drive Makes Gravel Plant Portable

Adaptability of the unit-motorized speed reducer to specialized types of service has brought portability to one of the last stationary pieces of road-building equipment, the gravel plant. One of the first installations using this type of equipment is the electrically-driven portable gravel plant of the Dodge Construction Co., Inc., of Nevada. The plant was designed by Andrew Drum, Jr., of this organization with the express purpose in mind of getting the maximum in portability, flexibility and convenience in starting and operating.

The plant consists of four portable assemblies: the power supply, the crusher and two conveyor units, each mechanically independent of the other

Power supply unit of portable electrically-driven gravel plant

but capable of being joined together to make up a complete rock crushing installation that can be set up and ready for operation within a few hours.

Power was selected at 220-volts, three phase, 60 cycles for the double purpose of getting simple, rugged equipment and so that a central station supply could be used wherever available and economically feasible. The power unit consists of a 40-hp. Caterpiller gasoline engine driving a 25-kva., 1,200 r.p.m., 220-volt, 60-cycle generator with direct connected exciter through a V-belt transmission. The switchboard consists of industrial type switches and includes a field rheostat, voltmeter and ammeter mounted in enclosed metal cases. A 3-kva. lighting transformer of the dry type is mounted directly back of the switchboard. The entire power unit is mounted on a truck chassis. A carbon-pile voltage regulator contained in a dust-tight metal case for mounting on a post near the plant so as to be free from vibration is used to maintain voltage automatically.

The crusher unit consists of a main crusher, revolving screen and the feed conveyor drive all mounted on a large trailer. When central station power is not available this unit is driven by a 75-hp. gasoline engine. The screen is

Portable gravel plant in action showing motorized conveyors

driven by a 5-hp. motor through a gear reducer and the head feeder conveyor belt pulley by a 7½-hp. unit. Each of the conveyor units are driven by a 5-hp. motor through speed reducers. All of the 5-hp. motors are controlled by manually operated switches with thermal overload protection and the main feed drive by a magnetic switch with push button control.

▼

¶"Mystery house" designed to be a home of efficiency is being erected at Mansfield, Ohio, by the Westinghouse Electric & Manufacturing Co. Designed and built by engineers and architects, the home is to be more modern than any yet undertaken but is still to be practical. It will include air conditioning, automatic heating and other measures of comfort and efficiency. The chief thought back of the design has been the elimination of labor and inconvenience in housekeeping. The entire project is to be shrouded with secrecy until completed.

▼

¶"Construction and Operation of Mechanical Refrigerators for Farms," by James R. Tavernetti, field engineer of the California Committee on the Relation of Electricity to Agriculture, is the title of a circular just issued by the Agricultural Experiment Station of the Universtity of California. The circular contains complete information on the design, construction and costs of a utility refrigerator for farm usage.

▼

¶Construction camps on the Boquet Canyon job of the Los Angeles Bureau of Power and Light transmission line have been completely electrified. This applies to kitchen equipment as well as air heating and refrigeration. Intense heat of the desert brought a realization of the comparative coolness of electric cooking equipment for camp cooking. Southern Sierras Power Co. is serving this construction work from its Boulder Dam power line.

▼

¶Newbery Electric Corp. has been awarded a contract by the Los Angeles Board of Public Works for furnishing and in installing 141 Marbelite concrete ornamental lighting posts equipped with Neolite four-light units on Washington Blvd. Contract price for the installation was $33,790.

¶Several increases in industrial load were noted by R. F. McFadden, manager of power sales, Southern California Edison Co. Among these air conditioning installation were notable. The Whittier Citrus Assn. installed 112 hp. in air conditioning equipment for lemon storage. At Santa Ana a new industry, that of making boxes, installed 100 hp. in nailing machines. The city of Santa Ana completely electrified its water system, replacing 220 hp. in gas engines with 200 hp. of electric motors. The Tead-McKevitt Packing plant at Ventura also put in 125 hp. in air conditioning equipment. On the San Joaquin lines of the Edison company the Byles-Jamison Lumber Co. installed 400 hp. in electric logging equipment at Shaver Lake.

▼

¶George Edwards, for some years associated with James R. Cravath, illuminating engineer, in the Pioneer Electric Co., at 1113 McDonald Ave., Richmond, recently took over full control of the company as Mr. Cravath returned to Rock Island, Ill. to become associated with an artificial ice company in which he has maintained an interest for some years. Mr. Cravath is a nationally know illuminating engineer and has written many pamphlets and books on the subject.

▼

¶A pick-up in brokerage business is noted in the relighting of the offices of E. A. Pierce & Co. at Pine and Montgomery, San Francisco. A new brokerage office and new quotation boards with lighting systems and interior lighting was recently installed by Charles A. Langlais, utilizing Holophane lens equipment. Architects were Kent & Hass.

▼

¶"Combining Mercury Vapor and Incandescent Lamps to Produce Commercial White Light" is a new pamphlet edited by D. R. Grandy from a paper presented before the 27th annual convention of the I.E.S. in August. Mr. Grandy is commercial engineer of the General Electric Vapor Lamp Co., Hoboken.

▼

¶William P. Bear, Pacific Gas and Electric Co., on his return from a trip to the I.E.S. convention and Century of Progress Exposition, prepared an illustrated talk on the lighting features of the exposition which was given both to the Illuminating Engineering Society, San Francisco Bay Cities Chapter, and to the San Francisco Electrical Development League. Mr. Bear also made the talk to several electrical leagues in the San Francisco Bay region. Copies of the talk were mimeographed and are available upon request to the Pacific Coast Electrical Bureau.

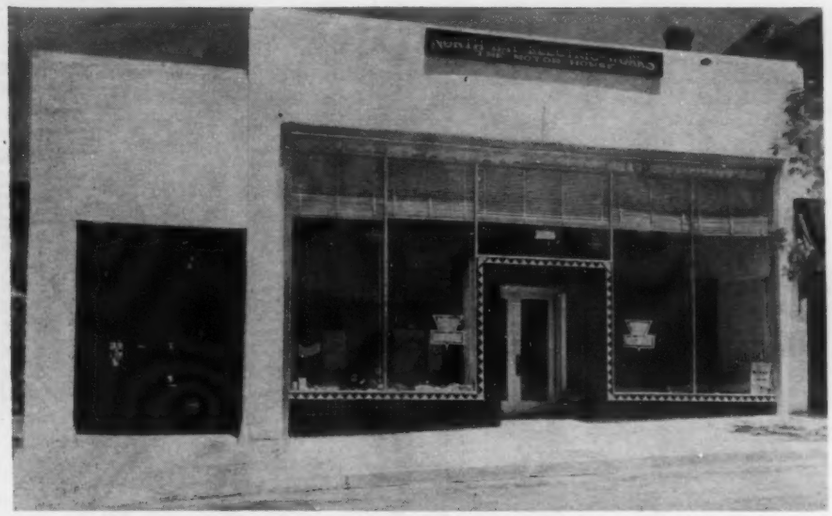
▼

¶Guy Cooper, Pacific Coast manager, Warren Telechron Co., announces the removal of Pacific Coast offices of the company from 1008 West Sixth St., Los Angeles to 1254 West Sixth St.

Motor Forum

—An Idea Exchange

for the Industrial Man and his practical problems, either mechanical or of policy



Wholly modern in its simplicity is the new store and shop of the North Bay Electric Works, San Rafael, Calif. One window is devoted to the motor shop display, the other to electrical appliances. The driveway at left permits trucks to drive right through the shop for loading

Sells Tools at Christmas

OF late years considerable small industrial business has slipped away from the motor shop to the chain stores of the big mail order houses. This business is one of hand tools, electric tools, accessories and parts, bearings, pulleys, small motors, and the like. In the past two or three years also, a number of home shop outfits have been developed and placed on the market and have sold very well. But it has not been the regular machinery dealer, or the electric motor shop that has sold these—it has been the chain store.

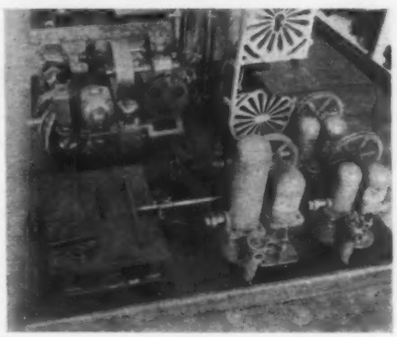
At least one live motor dealer, in a small city it is true, is alive to this possibility. J. Lamperti, proprietor of North Bay Electric Works, San Rafael, has wisely diversified his company's services to the local public, and as a consequence is finding that many of these "small change" items are worth carrying.

Practically crowded out of his former quarters, Mr. Lamperti arranged with the owner of some property for a new building, built more or less to his specifications. It provides, as the illustrations show, a large merchandise display room. Half of this is devoted to home appliances and wiring fittings. The other half is devoted to supplies for the small industrial business of the community and to the growing multitude of home shop enthusiasts.

Hence, North Bay Electric Works sells small home shop power saws, band saws, lathes, drill presses, jig saws, and the motors to operate them.

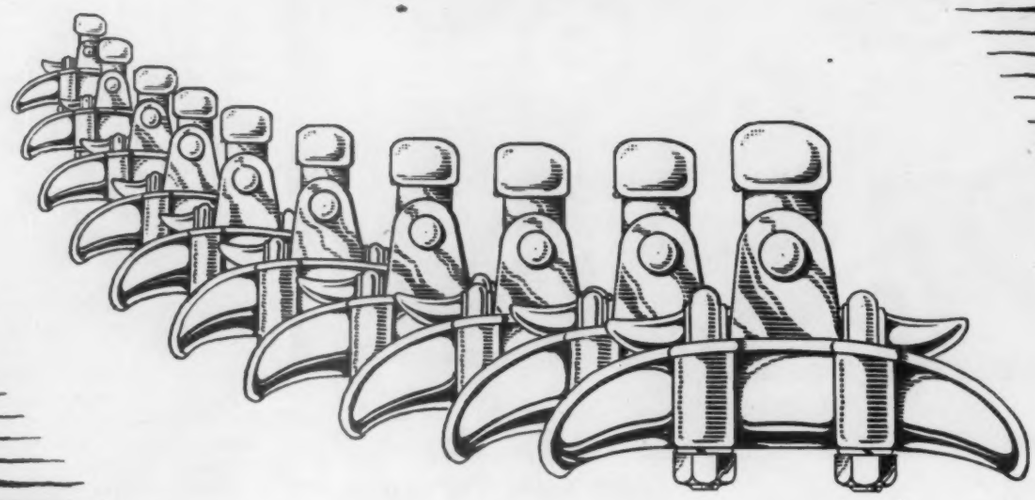
"There isn't a great deal of this business," says Mr. Lamperti, "But I figure that if I can make this the headquarters for the fellow who likes to work around his home shop, I will get what business there is. And it puts me in line, many times, for leads to jobs that I might not hear about. Sometimes a home craftsman takes on a job that he finds is to much for him. He naturally comes to me then as a logical place to get help. I think it is a good business.

"At Christmas time we sell more of these tools, too, and we display them as gifts for men and boys. There is many a dad buys a band saw for his big boy with more than an idea of how handy he will find it himself."



Below is the sales floor, half devoted to electrical home appliances, the other half to the industrial business. At right is a close up of one of the steel plate topped display platforms on which are shown small industrial equipment—saws, pumps, lathes, band saws, or small motors. Shelves along this side are well stocked with pulleys, parts, tools, oils, and greases, brushes and similar items

"... and we've improved the clamps, too.



Ten minutes after Fred Locke took the first wet process porcelain insulator out of his homemade kiln improvements started. And they've been continuous ever since. Improved transmission methods have always found improved insulators waiting for them.

Now we've modernized the clamps for you. We've taken away the excess size and the excess weight and in every way fitted them for the modern transmission line. Every principle that decades of experience has proved is included. They are strong, smooth to prevent corona formation, and they hold a conductor as a conductor should be held—without possibility of strain or kink.

There are ten in the series covering every conductor size generally used. Don't overlook them when you start that next job."

We'll be glad to send you your copy of this folder if you haven't already had it. It gives full particulars of these improved clamps and is just the right size to fit in your current Locke catalog.

LOCKE PORCELAIN INSULATORS

GENERAL ELECTRIC SUPPLY CORPORATION WESTERN SALES AGENT

Practical Men » » »

Death Takes Engineer And Wife Together

Charles L. Lawrie, whose Gilbertian Scotch wit had become a tradition of the San Diego Consolidated Gas & Electric Co., for which he was assistant superintendent of the Record Department, died of pneumonia, Nov. 23, in San Diego, just two days after death from the same cause claimed his wife, long an invalid. Small, quiet, efficient, and of subtle wit, Charlie Lawrie, as secretary of the San Diego Electric Club and one of its most active members, occupied the unique position of a "George Bernard Shaw" to the electrical industry of San Diego. He wrote titilating verse, his minutes of the meeting were gems of subtlety, his comment and repartee were unmatchable. There will doubtless be other assistant superintendents but there will never be another Charlie Lawrie.

Born in Toronto, educated there, a graduate in electrical engineering from Toronto University, as a young man he went to Scotland, worked as draftsman while studying naval architecture at Glasgow Technical College; then worked for Vickers Sons and Maxim in the design and testing of artillery. Returning to Toronto he went into business with a brother-in-law in manufacture, at Niagara Falls, Ont. He came to California in 1910, spent four years in the realty business, then got a temporary job with the San Diego Consolidated Gas & Electric Co., in 1915, and still held it at the time of his death. He produced the company's Overhead Distribution Handbook and edited its continuous revision. "Glow", the company's original employee house organ, was named by him, and he contributed frequently to it and its successor, "The News-Meter". At times he also contributed technical articles to Electrical West.

▼

¶**Marvelous Marin Electrical** League had as its speakers for the Nov. 2 meeting Carl Martin, Benjamin Electric & Mfg. Co., San Francisco, and Leonard A. Hobbs, of the Edwin F. Guth Co. William Hanbridge, lighting sales engineer for Pacific Gas and Electric Co., was in charge of the program.

▼

¶**C. T. Mess,** assistant engineer of the California State Railroad Commission, has been appointed valuation engineer of that organization.

▼

¶**Walter C. Heston,** for many years Pacific Coast editor of Electrical World, has become affiliated with the Biddle Trade Bureau, and will be engaged in its association work from the San Francisco office, with Walter J. Walsh, manager of the office.

Active on code organization is Sam G. Hepler, of Arrow Electric Co., Seattle, vice-president of the Seattle Electrical Contractors Assn. He has been most active in getting the contractors organized under N.R.A.

▼

¶**Robert F. McDonald,** sales manager of the San Francisco district, has been made vice-president and general sales manager of the Westinghouse Electric Supply Co. of Northern California. Mr. McDonald is a native of San Francisco and started his electrical career with the Holabird Electric Co., one of the predecessors of the present organization, in 1911 as a counter salesman. In 1914 he opened an Oakland house for the company, remaining in that city as manager for eight years. In 1922 he returned to San Francisco as sales manager of the Fobes Electric Co., which had bought out the Holabird firm. He continued in that position after the purchase of the Fobes company by Westinghouse Supply.

▼

¶**W. L. Winter,** sales engineer in the central station department of the San Francisco office of the Westinghouse Electric & Mfg. Co., has been transferred to the Salt Lake City office to succeed the late E. L. Morris, who recently passed away following an operation for appendicitis. Mr. Winter is a graduate of the University of California, having entered the Westinghouse apprentice course at East Pittsburgh in September, 1916. He joined the San Francisco office of the company in November, 1920.

▼

¶**C. J. Bennett,** formerly estimator for the Newbery Electric Corp, in Los Angeles, is in business for himself as electrical contractor at 1748 West Blvd., Los Angeles.

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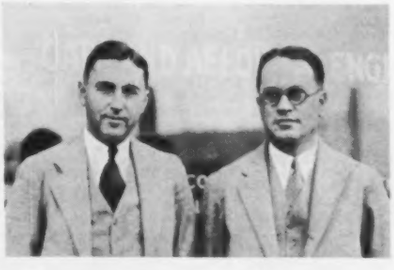


A couple of good distributors are E. A. Will, of Allied Industries, Inc., Seattle office, left; and A. C. Petrich, of Garland-Affolter Engineering Corp., Seattle

New Chapter N.E.C.A. Formed in South

A new chapter of the National Electrical Contractors Assn. has been granted a charter in southern California. The chapter eventually looks forward to replacing the Southern California Electrical Contractors & Dealers Assn. which has been maintained on a modified schedule for the past 3 or 4 years.

The new chapter boasts of 70 members in good standing, with more joining the ranks every week. Glenn Arbogast, Newbery Electric Corp., Los Angeles, was elected president of the chapter, a position he has held with the former association. A. L. Stone, Stone Electric Co., Los Angeles, is secretary-treasurer. In compliance with the request from N.E.C.A. an administrative committee has been nominated. It consists of: Otto K. Olesen, prominent Hollywood contractor-dealer and president of the Los Angeles branch; H. H. Walker, Los Angeles; J. O. Case, Quality Electric Co., Ltd.; C. A. Rowley, Pasadena; and Sam Weimer, Balboa Electric Co., San Diego. The chapter is operated and managed by the Biddle Trade Bureau with E. H. Gudie as executive secretary.

Plans are being made so that immediately upon approval of the electrical construction industry code, N.R.A., it may immediately be into effect in southern California. Sub-administrative committees are being selected in each of the localities in southern California to handle local questions and to clear through to the main administrative committee.

▼

¶**"Lighting and Seeing** Conference and Exhibit," planned by the Illuminating Engineering Society, Southern California Chapter, was indefinitely postponed last month after some of the preliminary arrangements had been made. It is thought possible that the exhibit may be staged in 1934 instead. The announcement of this change was made by George A. Hill, chairman, and Lloyd A. Gates, secretary of the section. "Illumination and Near Vision" was discussed by Dr. E. A. Hutchinson, director, Los Angeles School of Optometry, and Mr. Gates spoke on "Century of Progress Lighting" at the last meeting, Nov. 23. Other recent meetings included a trip to the Douglas Aircraft Co., factory, Santa Monica and a meeting at the Universtiy of Southern California. At the latter Urban L. Beh, General Electric Vapor Lamp Co., spoke on "Combination Mercury Vapor and Incandescent Lamps to Produce Commercial White Light." F. B. Nightingale spoke on "Garden Lighting" as did also Harold Crane, Southern California Edison Co.

▼

¶**Alfred S. Walthall,** chief of the job and estimate division of the auditing department of the San Joaquin Light and Power Corp., died in Fresno on Nov. 21 following a heart attack.

¶Classification of the types of work in which they are skilled and are equipped to handle will be made of the membership of the San Francisco group of the Electrical Contractors' Assn. of Northern California, according to Lloyd Flatland, president. A membership numbering nearly 100 without such a classification of types of construction has been found unwieldy to administer. A questionnaire has been sent out, containing 22 classifications of construction work. Each member is to check those indicating the kind of work his firm is equipped to do. A pamphlet with these classifications will be issued and given wide distribution to architects, general contractors and the electrical industry.

▼

¶Arthur L. Abbott has made an analysis of the 1933 revision of the National Electrical Code which has been published by the National Electrical Manufacturers Assn. Although copies have quite generally been circulated to the trade, they may be obtained from H. B. Kirkland, director of the Uniform Legislation Department, N.E.M.A., or from Claude C. Mitchell, secretary International Assn. of Electrical Inspectors, Southwestern Section, Merchants Exchange Bldg., San Francisco.

▼

¶A large electric furnace installation of 603 hp. was recently installed at the West Electric Castings Co. at Montebello on the lines of the Southern California Edison Co., according to G. N. Hawley, industrial sales engineer of that company. Other furnace installations made recently have been at Vernon at the Utility Trailer Co. plant. This plant was recently taken over and again placed in service. It has 1,260 hp. in electric furnaces. The Fluid Pump Co. also recently installed 100 hp. in electric heat treating furnaces.

▼

¶E. A. Wilcox, San Francisco manufacturers' agent, has just returned from a two weeks' Eastern trip in which he visited the factories of his principals in Cleveland, Detroit, Niagara Falls and other cities. Mr. Wilcox made the trip from San Francisco to Chicago and return via plane, reporting that by so doing he was able to reduce the .time required for the trip from three to two weeks.

▼

¶An ordinance passed by the city of Los Angeles recently prevents electrical contractors from operating without an individual license. A contractor must do wiring under his own license and not that of another firm. The ordinance was passed to stop the general practice of a cooperative group of electricians working on individual jobs under one license.

▼

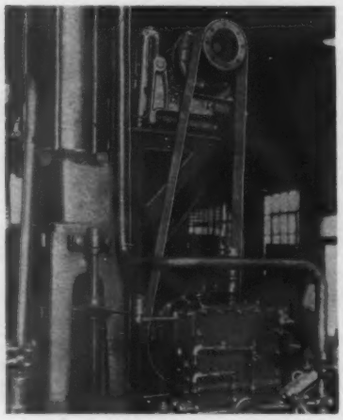
¶Pioneer Electric Co., of Richmond, Calif., recently installed 102 Holophane refractors mounted on brackets at the Giant Power Co. works and yard at Giant, Calif.

New Devices » » »

to Use on that Next Job

Motor Mounting

Rockwood Mfg. Co., Indianapolis, Ind., has developed two new motor mountings known as the "Vertical-Drive" motor base and the "Ceiling-Drive" motor base. Each is designed to give the respective drive it covers the full range of tension adjustment available in floor mounting bases. They have the added advantage that belt tension may be instantly changed to accommodate different operating loads on the motor-driven machine. It is claimed that they add to belt life and reduce wear on bearings.—Electrical West, Dec., 1933.



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Modern Lighting

The Miller Co., Meriden, Conn., announces a new line of lighting equipment known as "Nu-Mode." Designed to provide colors, individuality and modern appearance to any room in the home, as well as the fine shop and similar commercial interior, the new fixtures are constructed of porcelain on metal in a wide range of colors. Illustrated is bracket type No. 1851 which carries a list price of $5.50 less shade. Color finishes include black, ivory, citrus yellow or blue with chromium or gold plate trim. Silk shades which list at $1.90 are furnished in gold, rosewood, cream or sand.—Electrical West, Dec., 1933.

▼

Street Lighting Equipment

General Electric Co., Schenectady, announces three new units of street lighting equipment including a new luminaire, with no external live parts, a 30-amp. switch for the control of multiple street-lighting circuits and a cut-out equipped with a Thyrite bypass. The new luminaire, known as Form 72, is a suspension assembly for highways and secondary municipal thoroughfares. It consists essentially of a porcelain insulator supported around the waist by a clamp attached to the end of a straight pipe bracket. The insulator is adapted for mounting a radial-wave reflector or a cast-iron reflector for use with glassware. The new 30-amp. switch is designed with capacity above its normal rating to withstand the high inrush currents of lamp loads. A magnet-type operation is used and a lightning arrester is built into the case. The new cut-out gives street-lighting circuits all of the advantages of the Thyrite by-pass. —Electrical West, Dec., 1933.

▼

Handle-Fitted Fuse

Royal Electric Co., Avon, Mass., has developed a new cartridge fuse with an insulated handle designed to make fuse removal easy. The handle is fastened around the fuse and turns freely, making it possible to insert and remove the fuse at any angle.—Electrical West, Dec., 1933.

Voltage Regulator

Westinghouse Electric & Mfg. Co., East Pittsburgh, announces a new automatic step-voltage regulator, particularly applicable for maintaining constant voltage on suburban and rural circuits of 4,800 volts or more and for regulating low-voltage, high-current city distribution feeders where the service will permit. The new regulator is available in either single or polyphase design for 10 per cent regulation with 17 points of 1¼ per cent steps or 33 points of ⅝ per cent steps. It consists of a regulating auto-transformer and a load tap changer built into an integral unit arranged for outdoor operation.—Electrical West, Dec., 1933.

▼

Time Switches

Hart & Hegeman Division of The Arrow-Hart & Hegeman Electric Co., Hartford, has developed a new line of TS Time Saver Switches designed specifically for modern type C lamp loads. The mechanism is fully enclosed in compact Bakelite base, making a dustproof switch. The switches are standard, fitting standard switch boxes and standard Bakelite or brass switch plates—Electrical West, Dec., 1933.

▼

Trolley Distribution

Bull Dog Electric Products Co., Detroit, Mich., has developed a trolley duct system of electrical distribution to facilitate the use of portable tools on continuous assembly lines in industrial plants. In addition, this new product can also be used to facilitate testing of electrical devices, repair work in garages and service stations or anywhere that electric power and light must be portable and instantly available. — Electrical West, Dec., 1933.

▼

Truck-Mounted Ladder

Electric Service Supplies Co., Philadelphia, Pa., has developed a new ladder and mounting design for bolting directly to the bed of a utility maintenance truck body. Mounted on a tubular base, the ladder may be rotated and vertically adjusted to several positions. It is designed for such work as servicing street and traffic lamps, tree trimming, overhead splicing work and numerous small construction and repair jobs. It may be handled by a single operator on account of its light weight and the method of balancing employed.—Electrical West, Dec., 1933.

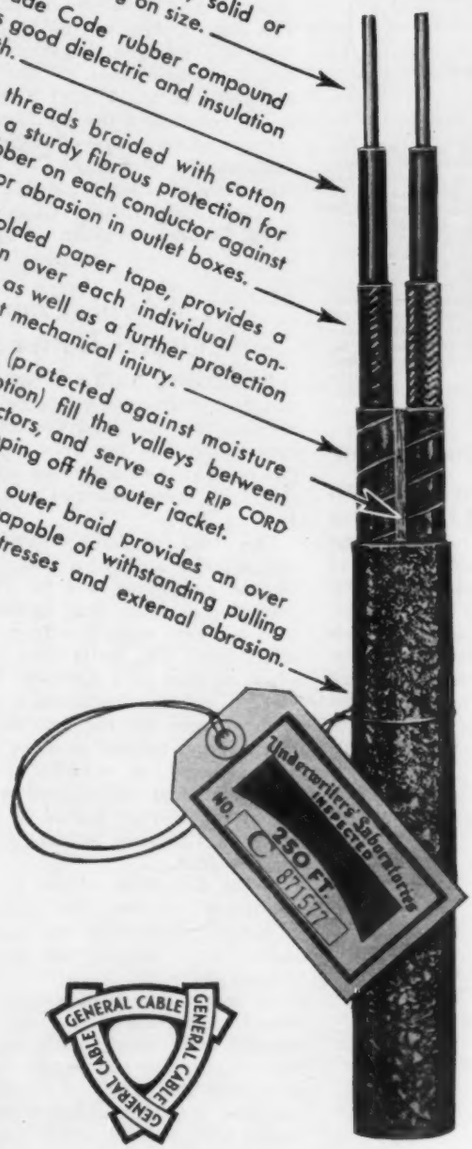
Why not cut costs with

ROMEX

NON-METALLIC SHEATHED CABLE

COVERED BY U.S. LETTERS PATENT AND PATENTS PENDING

- Tinned copper conductors, solid or stranded, depending on size.
- High grade Code rubber compound assures good dielectric and insulation strength.
- Paper threads braided with cotton assure a sturdy fibrous protection for the rubber on each conductor against injury or abrasion in outlet boxes.
- Multi-folded paper tape, provides a cushion over each individual conductor as well as a further protection against mechanical injury.
- Fillers (protected against moisture absorption) fill the valleys between conductors, and serve as a RIP CORD in stripping off the outer jacket.
- Tough outer braid provides an over coat capable of withstanding pulling —in stresses and external abrasion.



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What's New?

San Francisco Beats Power Bond Issue

Voters of San Francisco, by 72,773 to 71,465, defeated a proposed bond issue of $6,308,000 for the building of a 20,000-kw. hydro-electric plant at Red Mountain Bar on the Hetch Hetchy water supply system, the construction of a transmission line from Newark to the city, the erection of a standby plant and the installation of a distribution system in some of the residential and industrial areas of the city. The public works administration had authorized a $1,400,000 grant toward the cost of the project. For final passage, the bond issue required a two-thirds majority.

Several projects among the $35,000,000 bond program submitted to the voters carried. Included among these is the proposal to increase the height of O'Shaughnessy Dam on the Tuolumne River by 80 ft. This will approximately double the present capacity of the Hetch Hetchy reservoir and will assure almost continuous operation of the city's Mocassin power house.

The bond issue for the erection of the Red Mountain Bar power house together with the transmission line and distribution system was vigorously opposed by the Pacific Gas and Electric Co. with whose existing facilities the distribution system would compete.

▼

Washington Court Overrules Commission

Basing his opinions on the grounds that the Department of Public Works followed "an erroneous and unlawful theory as to the law" and that it arrived at conclusions which are not "supported by the law or the facts," Judge John M. Wilson, of the Thurston County Superior Court, reversed the department's order reducing rates of three Washington power companies for irrigation power and orchard spray service. Utilities affected by the order are the Puget Sound Power & Light Co., The Washington Water Power Co. and the Pacific Power & Light Co.

The decision is the outgrowth of a motion for a writ of review filed by each of the companies seeking redress from the Public Works Department's order reducing irrigation power rates approximately 35 per cent for the 1933 season. The reductions were ordered by the department on the grounds that economic and financial conditions among farmers in eastern Oregon created an emergency necessitating immediate relief through modification of charges. In their suit the utility companies contended that the department's order was erroneous in that it fails to take into consideration a valuation of the property used and useful in providing this service. The court held that while undoubtedly the condition of the farmers was deplorable, the idea of relief by the Public Works Department based upon the ability to pay had been repudiated by the courts. "The value of service rule or the ability of a customer to pay may be considered," the judge stated, "but they cannot be allowed to outweigh the utility's constitutional right to a fair return upon the value of the property devoted to the public's use."

In overruling the contention of the department that the depression in all business activities warranted action in reducing rates, the court cited the recent opinion of the Public Service Commission of Alabama as follows:

> Under the commission's regulation utilities are prevented from charging more for their service than will provide a reasonable return upon the fair value of their property devoted to public use. On the other hand, unregulated industry and commercial enterprises are free to charge for their products all that can be obtained during prosperous times. The limit to their price or profit is determined by supply and demand.
>
> In the case of regulated utilities, the regulation of rates and control of return is exercised to the end that rates at all times be maintained at a reasonable level. Were the utility unregulated, as is true of private enterprises, if they were free during prosperous times to fix rates without regulatory control, then they could with justice perhaps be subjected to the price fluctuations suffered by private business during economic depressions. If, however, they have not been able to earn more than a fair return during prosperous times, this fact must be given due consideration when we deal with their rates and rate of return during periods of general business depression.

▼

Funds Allocated for Project in Arizona

An initial allotment of $4,000,000 to permit the start of construction on the Verde irrigation and power project in Arizona, estimated to cost $18,912,000, has been authorized by the Public Works Arministration. The loan, which is self-liquidating in character, is to the Verde Irrigation and Power District which was organized some time ago under the laws of Arizona. The loan is to be repaid by water users under the Reclamation Act.

Plans initially contemplated the construction of eight power plants but the Bureau of Reclamation has recommended that only four be built at this time. Part of the power to be developed will be used for pumping and the surplus will be sold.

The entire project has been the subject of argument between the Verde district and the Salt River Valley Water Users' Assn., the latter group contending that it has prior rights to a portion of the waters of the Verde River.

▼

¶By a vote of 344 to 88 the electorate of Ketchikan, Alaska, registered approval of a $1,000,000 bond issue to purchase the electric, water and telephone utilities of the Citizens Light, Power & Water Co., of that city. The property is part of the Foshay system and is being operated by a receiver with headquarters in Minneapolis.

250-Mile Line Is Proposed in Montana

Allotment of $25,000,000 from the Public Works Administration funds for the construction of the Fort Peck Dam on the Missouri River near Glasgow, Mont., has resulted in the preparation of plans by the Montana Power Co. for the erection of a 250-mile, 156-kv. transmission line from Great Falls to the dam site. The power will be required for construction purposes and presumably the line will be used to transmit the 90,000 hp. which will be available upon the completion of the project.

The entire development will require an expenditure estimated to be from $59,000,000 to $83,000,000. The present dam will be of the rolled earthfill type, 230 ft. high, and will create a reservoir impounding 17,000,000 acre-ft. of water. The project involves navigation, flood control, power and irrigation and is under the supervision of the corps of engineers of the United States Army. It has resulted in the creation of a new division of the corps of engineers with headquarters at Kansas City and a district office at Glasgow, Mont., in charge of Lieut.-Col. Richard C. Moore, with Capt. Theodore Wyman as assistant.

▼

California Commission Orders Lower Return

Establishing 6 2/3 per cent as a reasonable return upon valuation, the California State Railroad Commission has ordered an 11.2 per cent reduction in gas rates of the Pacific Gas and Electric Co. in an order which is retroactive to July 15, 1933.

The order assailed the item of executive salaries and ruled that compensation of executives will be allowed as operating expenses only on the basis of a 40 per cent reduction from the 1931 salary level. The commission refused to allow an item of $12,000,000 for going concern value; substituted a minimum form of rate for the previous service charge type; refused to allow depreciation expense on standby production equipment and substituted a 25-year period for 15-year period in which to write off the main natural gas transmission lines.

In the discussion of the question of executives' salaries, the order stated, "When the depression was surely upon us, we believe the company should have reduced operating expenses to the minimum compatible with proper service, should have reduced dividends to correspond more nearly with earnings in other legitimate businesses, having in mind only the safety of future financing, and with the savings thus made should have builded better public relations by voluntarily giving part of those savings to consumers who severely felt the depression and a portion to the reserves of the company for the security of service."

In a statement commenting on the decision, A. F. Hockenbeamer, president

of the company, declared that the "criticism of the management and of company policies is not warranted by the evidence." He called attention to gas rate reductions made since 1929 and held that the commission owed consideration to the stockholders of the company as well as to the consumers. He stated, "In the past the regulatory policy of the commission has provided for earnings which would safely exceed the cost of financing and give confidence to investors. It was this policy that persuaded our 90,000 stockholders, largely residents of California, to invest their savings in the securities of the company. This company is customer owned. Its stockholders are entitled to just treatment. I feel that their interests have not received sufficient consideration in this decision."

The appeal of the company to the commission for a rehearing in the case was denied. There is considerable speculation as to whether or not the case will be taken to the courts despite the fact that in 21 years of operation under state regulation the Pacific Gas and Electric Co. has not taken a single rate case into the courts.

▼

Work Started on Bonneville Dam

Additions to the engineering staff for the Bonneville Dam on the Columbia River, forty miles east of Portland, have been announced by Major Charles F. Williams of the Army Engineers in charge of the construction. D. C. Henney, consulting engineer, Portland, Oregon, will be a consultant on all phases of the project. L. F. Harza of Chicago will give his attention principally to the design of the power house.

On the engineering staff under Chief Civilian Engineer C. I. Grimm are H. G. Gerdes on design specifications and hydraulic studies for the dam; R. E. Mackenzie on design specifications and hydraulic studies for the locks and power house; A. E. McKennett on the railroad and highway relocation; and H. A. Rands on foundation investigation, lands and flowage, surveys and supervision of contracts (except as the the surveys and contracts pertain to railroad and highway relocations).

The first major contract of the work was let Nov. 1, covering approximately 500,000 cu. yds. of excavation for the dam structure and the construction of four coffer dams. Selected material from this excavation will be wasted on the lower end of Bradford Island to form part of the earth fill dam.

▼

¶**Application** of the Seattle Lighting Department for a $25,792,000 loan and grant from the Public Works Administration for completion of its Skagit power project has been referred to the P.W.A. technical board of review for examination of engineering details, according to advices from Washington, D.C. The application will take the regular course of all such requests for allotments.

Utility Tax Increase Proposed in Oregon

A state tax on gross revenues of public utilities in the state of Oregon was advocated in the message of the governor to the special session of the legislature which convened November 20. The legislature was convened primarily to formulate liquor control laws and provide additional tax funds for the state's share of unemployment relief. The tax on liquor is expected to meet the needs of unemployment relief. The tax on utility earnings is to help distressed school districts out of their difficulties, according to the views of the governor.

Electric utilities operating in the state today are paying as much as 19 per cent of their gross revenues in some form of tax. In most companies the tax bill equals or amounts very nearly to the amount of their payrolls, and in one of the larger companies the tax bill is actually greater than the payroll.

At least one proposal to the legislature is expected having to do with putting the state into the power business as a transmitter of energy. Advocates of this proposal claim the state should put itself in a position to contract for federal power at Bonneville by having transmission lines over which to send this power to all parts of the state for purchase and distribution by utility districts, municipalities, and private companies.

▼

Washington Utilities Must File Budgets

Privately-operated utilities have been requested by the Washington Department of Public Works to comply with a new law requiring them to file budgets of anticipated expenditures in detail with the department. The new law also gives the department the "right and power of regulation, restriction and control over the budgets of expenditures of public service companies."

In placing the budget provisions of the new law into effect, the department directed the companies to file their budgets on or before November 15. They must show the amount of money which, in the judgment of the company, will be needed during 1934 for maintenance, operation and construction, classified by accounts as prescribed in new budget regulations adopted by the department.

The new law applies to all gas, water, telephone, telegraph, electrical and toll bridge companies in the state whose annual gross operating revenues exceed $10,000; auto transportation companies whose annual gross operating revenues exceed $20,000; street railway, noncertified and certified water carriers and dock companies, whose annual gross exceeds $25,000, E. K. Murray, director of the department, reports.

Under the department's budget regulations, failure of the department to object to any item within 60 days from the filing of the original budget shall constitute authority to the company to proceed under the financial outlay submitted. Adjustments or additions may be made from time to time during the year by filing a supplementary budget for approval or rejection.

Budgets also must classify proposed wage scales as to type of service performed and show the basis and rate of payment. Complete information as to items covering contemplated payment for service to a person or corporation having an affiliated interest is called for. Detailed explanations of proposed expenditures in connection with "legislative and political action, proposed initiative and referendum measures, political campaigns, lobbying, propaganda" are requested by the department. The names of all employes receiving $200 or more per month must be listed.

▼

Utah Electric Rates To Be Investigated

On innocuous application to the Public Utilities Commission of Utah for a 10 per cent reduction in rates for electricity served to Fort Douglas in Salt Lake City is likely to result in a complete survey of the power rates and service of the Utah Power & Light Co. The case originated with an application of the army for an order reducing rates charged it by 10 per cent, the petition alleging that the rates now being charged are "too high," being similar to other complaints filed in various sections of the country. The Utah Power & Light Co. filed an answer stating that the rates being charged the army were the regular rates according to schedules on file with the commission.

When the case came up for hearing in September no one appeared for the army and it was dismissed on the grounds that the commission had no authority to change rates unless a proper showing was made to justify such action. The dismissal order was later amended to a continuance to permit presentation of evidence by the War Department and the entrance into the case of the attorney-general of Utah. Subsequently a petition signed by 30 residents of Salt Lake asking for the right to plead in intervention on the side of the government was submitted to the commission. This was followed by a decision on the part of the commission for the initiation of a general investigation into all rate schedules of the utility company.

▼

¶**Application** for an $8,000,000 loan for a power system centering at Gillette, Wyo., has been filed with the Wyoming Public Works Administration's office by the Black Hills Power Assn., of that city. Under the plans presented the association would utilize the coal deposits near Gillette in the generation of power and distribute it in northwestern Wyoming and the Black Hills region of South Dakota.

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Northwestern Case Still Being Heard

Another phase of the protracted hearing on the Oregon properties of the Northwestern Electric Co., Portland, before the state public utilities commissioner, closed with the completion of the company's testimony as to its inventory and valuation. Several witnesses were called to substantiate the voluminous inventory and appraisal prepared for the company by E. C. Willard, consulting engineer.

Salient fact in the complex mass of figures gone into in this phase of the hearing is that the company places the reproduction cost new less depreciation plus going concern value of its Portland district at $13,817,000. This includes allocation to this district of 65.1 per cent of all the jointly used facilities such as power plants, transmission lines and major sub-stations, the other 34.9 per cent being allocated to Washington. This split is based upon the relative peak responsibilities of the two districts.

The commissioner's valuation for the Oregon properties is approximately $8,867,000. This figure excludes from the value of the jointly used properties about $600,000 for the Pittock steam station declared by the commissioner to be no longer useful in the public service and further the commissioner's valuation is arrived at by splitting the balance of the jointly used property fifty-fifty, which is based on the kilowatt-hours delivered at the substations.

▼

Salt Lake Votes Against Municipal Ownership

Salt Lake City voters on November 7 delivered a crushing defeat to a municipal ownership proposal when they voted down by two and a half to one an $18,000,000 bond issue to build a city electric plant. The complete canvass of the votes showed 12,901 for the $18,000,000 revenue bonds necessary to build the plant, and 29,350 against the municipal plant bond proposal.

The barrage of ballots against the municipal plant movement was laid down in about equal volume in all sections of the city. A fair analysis of the vote shows that the laboring classes joined with the business and civic interests in voicing an emphatic "no" to the proposal to put Salt Lake City into the electric power business in competition with the present privately owned company.

The first blow was delivered to the municipal ownership group when their two candidates for city commissioners failed to qualify in the primary election on October 24. They ran ninth and tenth in a field of twenty-two.

In the campaign the opponents of municipal ownership pointed out that municipal ownership would increase taxes by removing taxable property from the tax rolls of the city, county and state; would increase electric rates if the income of the proposed city plant was not enough to pay off the revenue bonds at present rates; that such a large undertaking by a city government would result in building of a huge political machine which would dominate Salt Lage City for years to come; that the plant never could be successful because the private company would hold at least fifty per cent of the business and that the city would be forced to meet expenses of the plant out of the general tax fund.

▼

¶**The Columbia Basin Commission** has announced that the principal contract for the Grand Coulee dam will be awarded about May 15, 1934. Ellsworth C. French, research director, predicts that preliminary work costing $5,000,000 and employing 1,500 men, will be under way shortly and will include: engineering camp, seventy-five to one hundred semi-permanent dwellings, $500,000; bridge to be used during construction, $650,000 to $700,000; preliminary excavations, including clearing 4,500,000 to 9,000,000 yards of earth and rock from the dam site, at a cost of $2,000,000; highways, $750,000; railway extension, $750,000. The Washington Water Power Company has agreed to extend a line from Coulee City to the dam site, to provide 6,000 to 10,000 hp. for construction purposes.

▼

Better Light For Drivers

Beauty and utility are combined in this street lighting installation recently installed on N. Lake Ave., one of Pasadena's main traffic arteries. Combination trolley poles and lighting standards, built by the Taper Tube Pole Co., each support 210,000 lumen General Electric Novalux luminares. The poles, which are spaced approximately 110 ft. apart, are 40 ft. high and designed for a 2,000-lb. top load without exceeding a 7-in. deflection. Under normal load the deflection is unnoticeable. Tests of street illumination made with a light meter show that the installation is highly efficient and the arrangement of the standards and units has provided proportionately more light on the intersections than any other street lighting installation in the city.

Washington Utility Valuations Start

Valuations of the Puget Sound Power & Light Co. properties by the State of Washington, the largest valuation proceedings ever undertaken by the state, is being started at once by J. W. Carey, chief engineer of the department of public works. Similar valuations are also being started with the Washington Water Power Co. at Spokane and the Pacific Power & Light Co., with book valuations of upwards of $200,000,000. Mr. Carey states that "no valuation by the state has ever been made of the Puget Sound Power & Light Co."

During 20 years of state regulation properties of the Washington Water Power and the Pacific Power & Light companies have been valued, but Carey declares the department will largely disregard past history. Under the new law passed by the last legislature, the power companies will be assessed for the cost of the state valuation, as well as paying for their own.

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¶**On complaint** of the Arizona Edison Co. a temporary injunction restraining the Arizona State Corporation Commission from placing in effect reduced power rates in Yuma, Ariz., has been granted by United States District Judge Fred C. Jacobs. The complaint of the power company holds that the rate order is in violation of the 14th amendment and that one of the commissioners was appointed by the governor "with the express agreement to reduce all electric, gas and water rates chargeable by the utilities of this state."

▼

¶**Formal protest** will be launched by the Lost Angeles Bureau of Power and Light against the proposed lease to The Southern Sierras Power Co. of a 40,000-kva. generating unit at the Boulder Dam electric plant at public hearings to be held in Washington, D.C. The bureau contends that the proposed agreement is in violation of the agreement between the federal government and the Department of Water and Power which was entered into several years ago.

▼

¶**Three gas companies** serving Los Angeles and the adjacent Southern California territory announced on Nov. 4 that they will donate seventy-five per cent of the amount of the gas bills of needy families which are members of the Unemployed Co-operative Relief Units. The companies are the Los Angeles Gas and Electric Corp., Southern California Gas Co. and Southern Counties Gas Co. The aid will be extended from Oct. 1 to Jan. 31. Cases receiving the aid must be certified by the federal relief administrator as not receiving an income to meet the bare necessities of life, receiving no monetary aid from any welfare or relief agency other than the federal government, and as exchanging their labor for food supplies and other necessities of life.

Northwest Assn. Organizes for Work

Meeting recently in Portland, the advisory council of the Business Development Section of the Northwest Electric Light & Power Assn. set up its organization and outlined its work for the year under three bureaus and three special committees. R. B. McElroy, The Washington Water Power Co., Spokane, is chairman of the Section, and R. M. Bleak, Utah Power & Light Co., Salt Lake City, vice-chairman.

The residential sales bureau under Guy Davis, Pacific Power & Light Co.,

R. B. McELROY

chairman, will study the different plans for selling electric ranges now being tried out in different parts of the country, with Glenn Jackson, The California Oregon Power Co., as chairman of the range committee. The selling of water heating service will be taken up by the water heating committee under Tom D. Fulford, Puget Sound Power & Light Co. R. M. Laughrey, General Electric Supply Corp., is to head the home appliance committee which will suggest ways for increasing distribution of small appliances. The possibilities in the use of the home lighting kit for selling added lighting in residences is to be the principal study of the home lighting committee with L. V. Ross, The Washington Water Power Co., chairman.

The industrial and commercial sales bureau has as its chairman H. C. McDaniel, Pacific Power & Light Co., and will take up the subjects of commercial cooking, air conditioning, commercial lighting and commercial and industrial power and heating, under committees headed respectively by: Carl Hoffman, and H. C. Bender, The Washington Water Power Co.; L. B. Gawan, Utah Power & Light Co.; O. C. Mayer, Idaho Power Co. This bureau will work closely with the utilization committee of the Engineering Section in which a study of the engineering phases of some of the larger power uses is to be made under E. F. Pearson, Northwestern Electric Co.

The rural sales bureau under L. C. Moore, Portland General Electric Co., will give consideration to a definite rural sales program for utility companies, and at the same time will gather additional material for the "Electricity in Agriculture Handbook" produced last summer.

The following special committees will function outside the bureaus: dealer relations, Lewis A. Lewis, The Washington Water Power Co., chairman; advertising, A. C. McMicken, Portland General Electric Co., chairman; customer service, R. M. Bleak, chairman.

The annual Section meeting was tentatively planned to be held late in February or eary March of next year at a place to be determined.

▼

Optometrists and I.E.S. Meet at U.C.

A joint meeting between the Illuminating Engineering Society, San Francisco Bay Cities Chapter, and the Optometrical Society of the same region, was held at the University of California, Physics Building, recently with Dr. Ralph S. Minor, professor of optometry and former professor of physics, as the principal speaker. The talk dealt very generously with the recent pamphlet by Matthew Luckiesh, "The New Science of Seeing" and brought forth one or two excellent points in favor of better illumination.

Dr. Minor stated that if light is furnished properly one can never get too much of it. If it is found to hurt the eye it is the fault not of excess quantity but of its aim, quality or contrast. He also pointed out that the eye is chiefly concerned with the brightness of the object; not how much light is deposited on its surface, but how much comes back to the eye from it. An interesting point made was that where close work for long peroids of time requires a concentrated accommodation of the eye to the work, such as in inspection or reading, it is well to provide the eyes with special lenses which will relieve the muscles of the necessity for accommodation, in addition to providing good lighting. Robert Prussia talked on behalf of the Illuminating Engineering Society.

Another interesting meeting of the society was that at the Sunnyvale Air Base at Sunnyvale, Calif. Lighting inside the new hangar, with the U.S. Macon in the hangar, was demonstrated. The Santa Clara Electrical Development League joined the society on this trip.

▼

Voters of Long Beach, Calif., at a special election held November 21 refused to sanction the proposed withdrawal of the city from the Metropolitan Water District of southern California. The vote was 14,989 against withdrawal and 11,382 favoring withdrawal. Seven bond issue proposals were defeated at the same election. The proposals, calling for a total of $1,061,500, included construction of a library, city hall repairs, construction of a fire station, Belmont Pier repairs, storm drain construction, a municipal comfort station and airport improvements.

Utilities Are Tax-Gatherers in Idaho

Extent to which Idaho utilities are acting as tax-gatherers is revealed in a report of the Public Utilities Commission covering operations of electric companies in the state for 1932. Reports of the companies to the commission, heretofore secret in character, were made public by a recent act of the state legislature.

Municipal, county and state governments received 17.2 per cent of the gross revenue of the Idaho Power Co. during 1932 or a total of $630,771.26. Of this amount $391,049.98 was paid in general property or ad valorem taxes; $19,739.91 in state income taxes and $145,924.70 in state kilowatt-hour taxes which are levied on the basis of a half mill on every kilowatt-hour generated for sale in the state. In addition to the above the company paid approximately $60,000 in federal taxes.

The company's state tax bill was 29.89 per cent of total operating expenses and 40.34 per cent of total net operating revenue.

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Large Pipe Line Is Field Welded

Interesting feature of the Bouquet Canyon reservoir development of the Los Angeles Department of Water and Power is a 4½-mile electrically arc welded pipe line that joins the reservoir with the aqueduct system. The new Bouquet Canyon Dam replaces the St. Francis Dam which was destroyed several years ago. Water will be carried from the reservoir through the pipe line to the surge chamber of the San Francisquito No. 1 power house.

The pipe line under construction is one of the largest in the West. It varies in diameter from 94 in. to 80 in. with a maximum thickness of 1 1/16 in. The pipe was fabricated by the Western Pipe & Steel Co. and carried to the job in sections weighing approximately 12 tons. It is sandblasted and painted in a field plant and then hauled to the point where it is laid. The route of the pipe line is extremely rugged as indicated in the accompanying photograph.

Actual laying of the line and field welding are done by the construction

forces of the Los Angeles Department of Water and Power. Approximately 450 lb. of electrode is required to weld each joint. Thirty-two man-hours are required to weld the outside and 24 man-hours the inside of each joint. In the fabrication and laying of the pipe the Lincoln shielded-arc process of welding was adopted.

▼

¶ **Utilities** in Spokane, Wash., are endeavoring to compromise with the city over the 3 per cent gross occupancy tax levied against them and which is now being contested in the courts. The Washington Water Power Co. offered the city a settlement for 1934 on the basis of a total payment of $30,000 or approximately 1 per cent of the gross earnings of the company. The ordinance places a tax of 3 per cent on the electric and telephone companies and 1 per cent upon the gas company.

▼

¶ **Recommendation** that the Reconstruction Finance Corp. be asked to buy $15,600,000 worth of California Toll Bridge Authority bonds with which to finance the construction of an electric interurban line across the San Francisco Bay bridge has been made by the financial advisory committee of the Toll Bridge Authority. It is proposed that the system be operated publicly or by the Key Route or Southern Pacific Railways, with whose lines it would connect.

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Barometer

Contrasting with a 6 per cent decrease in the country as a whole, industrial activity in the West during October was maintained at the level attained in September, which in turn differed but little from the average of August. Compared with last year's October an advance of 16 per cent is indicated by the reported energy consumption in the various industry groups listed in the accompanying table.

Among these groups, however, some shifting of the balance occurred. After revisions in the September figures, made necessary by reports received subsequent to the publication of the results in the November issue, chemicals show an advance of 6 per cent and the paper and pulp industry of 5 per cent. Foods receded 7 per cent, rubber products 5 per cent. In other branches the changes were negligible.

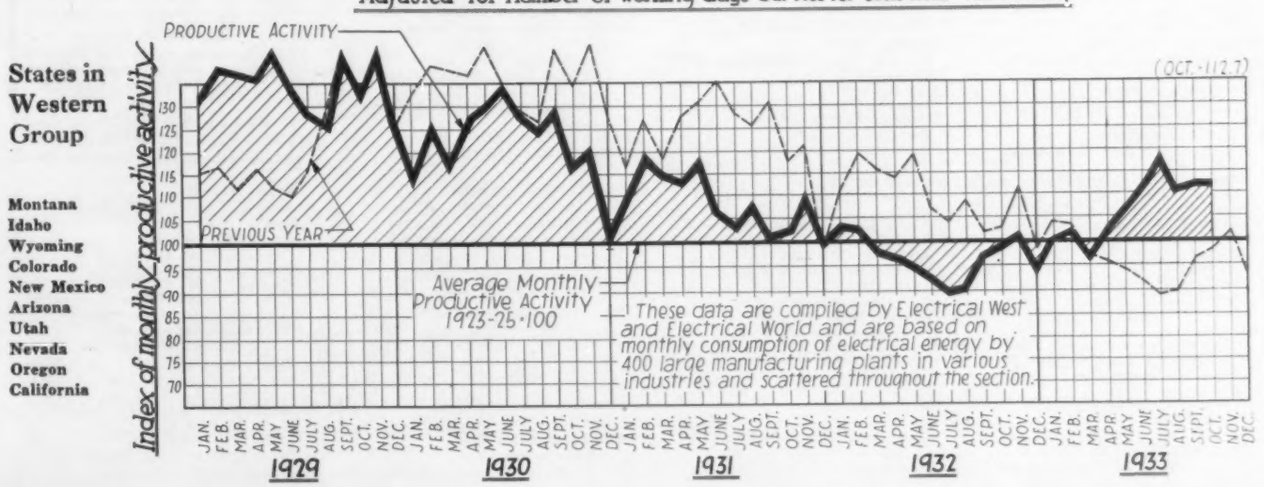
It is significant that the greatest gains for the interval of a year continue to be found in those industries that have to do with new construction. In particular, the group comprising iron and steel and metal-working plants stepped up 76 per cent. The stone group, reflecting activity in cement manufacture, gained 66 per cent. Shipbuilding rose 28 and lumber products 14 per cent.

Indexes of Manufacturing Activity in the Western States

(All figures adjusted for number of working days)

	Oct. 1933	Sept. 1933	Aug. 1933	July 1933	Oct. 1932
All industry	112.7	112.8*	111.7	118.2	96.8
Chemicals	91.2	85.8*	80.0	87.5	86.0
Food	111.3	119.3	115.8	132.2	112.0
Metals	75.3	76.2	71.4	70.3	42.8
Lumber	151.7	153.1*	154.5	156.0	132.8
Paper	145.4	138.2	134.0	150.3	139.5
Rubber	92.5	97.0	108.7	125.3	75.8
Shipbuilding	113.2	113.0	117.2	113.6	88.5
Stone	118.2	119.6*	116.0	118.0	71.3

*Revision



WHERE TO BUY IT IN THE WEST

This guide to products supplements The Manufacturers' Directory, published in the April, 1933 issue. Under the name of the appliance or equipment will be listed the advertisers of that product; by cross-checking with the listings in the directory, the local agents for any item thus can be found. If further information is desired, write to ELECTRICAL WEST, 883 Mission St., San Francisco, Calif. While the same care has been exercised in compiling this guide as in the directory, the publishers assume no responsibility for errors or omissions, but will make such corrections and additions as are requested within the restrictions set.

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Graybar Elec. Co., Inc.

Anchors, Guy
James R. Kearney Corp.

Appliances, Household
Apex Rotarex Mfg. Co.
Chicago Flexible Shaft Co.
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No News in Denver—Much!

Your inquisitive correspondent learned from no less than a dozen contractors, dealers, utility officials, jobbers and manufacturers' agents that "there is nothing much doing" in the electrical industry so far as the Denver sector is concerned.

Yet, the boys seem to have turned on the power but nobody knows about it.

First and foremost, the electrical industry sales rally has developed kilo-wattage that throws sparks into Colorado, Wyoming and New Mexico. Organized and sponsored by Rocky Mountain Electrical Assn., this activity furnishes a definite program for every man, woman and institution in three states selling electric energy or equipment. The lighting school, conducted by Walter Sturrock and W. T. Clark, illuminating engineers from Nela park, was one recent phase of the promotional work being done. Six states were represented among the "students" who attended to learn about "Better Light, Better Sight." Another big rallying point was the electric cookery demonstration where many distributors, wholesalers, utility officials and dealers ate electrically cooked food for the first time.

D. D. (Dave) Sturgeon—Sturgeon Electric Co.—has just finished stringing 25 miles of 13,000-volt transmission line between Aspen, Colo. and a point which marks the east portal of the projected Twin Lakes Irrigation Co.'s tunnel through Hope mountain on the continental divide. Dave completed the job in 90 days, with the aid of 75 men and a cavvy of burros, mules and horses. Pack animals carried into the desolate mountain country one carload of copper wire; one carload of crossarms, two carloads of insulators; one carload of transformers, and one carload of pole hardware. Dave prayed for honest, equable Colorado weather (the kind California claims patent to!); dynamited almost every pole hole; came through the terrific ordeal without a day's lost time, with his religion, horse-mule-and-man-power-intact. Merry Christmas!

The transmission line connects with the Roaring Fork Electric Light and Power Co. whose hydro plant at Aspen consists of six 500-hp., direct current generators. One unit of this battery will be replaced by a 500-kva. alternating current generator supplied and installed by the Mine and Smelter Supply Company—W. A. Mitchell, engineer and salesman extraordinary, officiating at the contract-signing ceremonies. Graybar Electric Company, of which the redoubtable A. C. (Al) Cornell is manager, ties in with the installation of switchboard, feeder and regulator. About $25,000 worth of business here; not counting the electric hoists, air compressors, electric locomotive and other material that will go into the project.

The electrical clan in Denver wished "good hunting" to John J. Cooper and Arthur Bacon, two veterans of the industry, who formed an alliance known as The Bacon-Cooper Co. last month. Manufacturers' representatives with no warehouse stocks, they handle lines that range from switches and sockets to signalling systems, motors and commercial floodlights. John Cooper has been in the electrical business in Colorado more than 30 years—with Mountain Electric Co., G.E. Supply, Hurley Machine Co., and, more recently, secretary of the Electrical League of Colorado. Arthur Bacon has represented five big manufacturing concerns in Denver for almost a decade. The pair will cover territory in Colorado, Wyoming, New Mexico, Montana and parts of Idaho.

Among other **non-exciting things** electrically is construction of K.O.A.'s huge 50,000-watt broadcasting station, ten miles east of Denver. Clark Rider (Denver Electric Co.) has the wiring contract, a very nice one.

W. A. J. Guscott (Gus) almost forgot to mention that his firm has undertaken the contract to wire the Tivoli Brewing Co.'s expanded plant. Approximately $280,000 is going into the brewery's enlargement which will more than double present capacity, involve two 250 horsepower water tube boilers, two underfeed stokers, a new refrigerating unit, triple the electric power load, and call for new motors, generators, mash tanks, wash house and whatnot.—Ed Hoover.

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Regulation Needs Defending

PUBLIC utility regulation is on the defensive. Under the pressure of public opinion, which in many cases is both misguided and misinformed, the concepts of such fundamentals as rate base, fair value and reasonable return are becoming outmoded by newer social considerations such as ability to pay, value of the service and what is worse yet, the invasion of regulatory bodies into fields hitherto reserved strictly to utility managements.

Recent orders and decisions of regulatory commissions not only reflect these changes, but because commissions as well as the utilities are under fire from both public and politicians, these orders have leaned precariously to the left, mirroring both popular and political criticism and discontent. While it is true that economic and legal considerations have been given weight, nevertheless social considerations have been, if not uppermost, then at least well to the fore.

Responsibility for the seeming unpopularity of regulation rests squarely on the shoulders of both the utilities and the regulatory bodies. And as a corrolary, correction of this situation is a task that must be undertaken by both, jointly and individually.

Individually those responsible for administering the regulatory laws of the various states should derive pride in their past works that will stimulate courage to tell the public that sound regulation has been responsible for the stability of utility operating companies through a period that has severely tried other businesses. They need to tell the public and politicians both that without sound regulation electric operating utilities would be in the same condition as other businesses—vastly over-produced, credit impaired, and service deteriorated—particularly had regulation not reduced competitive practices.

The power companies must appreciate that reggulation has certain public relations aspects that cannot be overlooked. Voluntarily action as regards rates will bring popular acclamation. Legal battles arouse distrust and resentment. But a clean cut fight for rights that have been denied or transgressed, when publicized as such, will be respected and admired. These things will help regulation.

And if regulation itself needs a "New Deal," as many critics are claiming, then the new deal should be worked out jointly by utilities and regulatory bodies. "Conference, not controversy," as one commissioner puts it, will serve to restore public confidence in regulation.

A Sales Opportunity

HERE on the Pacific Coast there is a surplus of electric power today which is to be augmented by a tremendous additional surplus as various PWA projects are completed. "Let the power companies worry about it," is the attitude frequently expressed by other branches of the electrical industry. But the manufacturer, the wholesaler, the retailer and the contractor have a definite interest in this power whether they appreciate the fact or not.

Electric power, **per se**, is meaningless without converting devices to translate it into useful service or work. Taking the domestic customer alone, one authority has estimated that every killowatt-hour of annual use in the home requires an average investment in converting devices of between 50 cents and $1, including wiring, lighting equipment and appliances. What a market possibility, then, this surplus power offers to the industry as a whole!

Using the 50-cent figure on the 5.8 billions of kilowatt-hours of power that Boulder Dam will make available to California, and assuming that only half of this power might be used in homes at an average load factor of 30 per cent, we arrive at a potential market for converting devices—wire, wiring supplies, labor, appliances of every character and lighting equipment—of $435,000,000. Applying the same reasoning to the Bonneville project on the Columbia River and assuming development to the full capacity of 500,000 kw., gives a potential market of $324,000,000.

Figures like these should stimulate the imagination and sales ingenuity of every branch of the industry. Such a potential market warrants study as to ways and means of selling it. Certainly the manufacturer, the wholesaler, the retailer and the contractor have every reason for grasping such a sales opportunity.

the New
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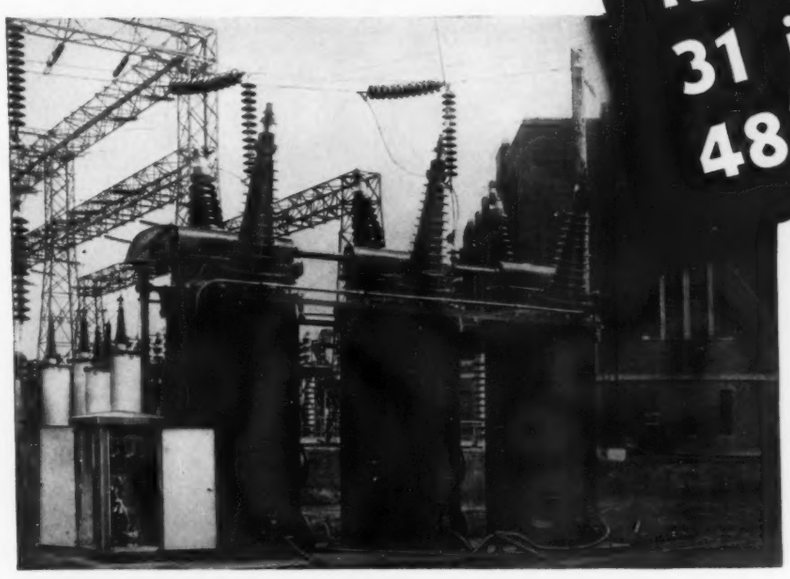

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Performance Counts. This is again evidenced by the fact that one of the large power companies has modernized an increasing number of breakers since 1931. During the last three years, 94 "FHK" outdoor-type G-E breakers, of various voltages, have been modernized and improved by the addition of oil blast.

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The farmer is in a planning and buying mood. He has a "little ready cash." He is ready to act on the farm electrification facts he has read all year in Pacific Coast Electrical Bureau advertisements.

Start out into the country, invite farmers and their families to look over your stock of farm equipment. Answer their questions. Show them how you can save them money, time, and crop losses. How they and their families can enjoy convenience and comfort through the use of electrical equipment and appliances.

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